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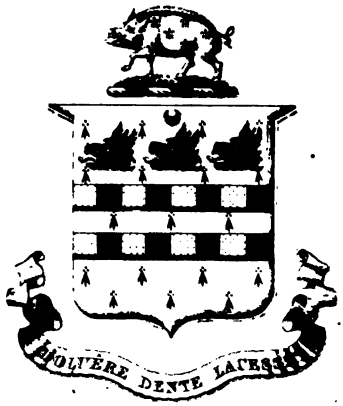

R. E. Arden.

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WILLIAM BENSON EARLE, ESQ.

Late of the Close, Sarum.

Engraved by William Evans from an original Drawing executed by William Hoare, Esq: of Bath, in the Year 1769.

Pub: as the Act directs July 1. 1797.

TRANSACTIONS

OF THE

SOCIETY

INSTITUTED AT LONDON,

FOR THE

ENCOURAGEMENT

OF

ARTS, MANUFACTURES, and COMMERCE;

WITH THE

PREMIUMS offered in the YEAR 1797.

VOL. XV.

LONDON:

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M.DCC.XCVII.

PREFACE.

IN the year 1796 the Society received the following Letter.

" GENTLEMEN,

" As Executors to the late WILLIAM " BENSON EARLE, of the Cloſe of Sarum, " Eſq. we have tranſmitted to you the " following Extract of his Will.

" I give and bequeath to the Preſident " and Members of the Society in London, " eſtabliſhed for the Encouragement of " Arts, Manufactures, &c. for the time " being, the ſum of two hundred guineas, " in truſt, that they reſpectively do apply " the whole of the ſaid ſum of two hun- " dred guineas, or the annual intereſt of " the ſame, at their diſcretion, in the pur-

" chaſe of Books for the Public Library of
" the ſaid reſpectable Society.

" We are, Gentlemen,
" Your humble Servants,
" J. SKINNER.
" EDMUND BENSON."

" *Sarum, April* 6, 1796.
" The Preſident and Members of
" the Society for Arts and Ma-
" nufactures, London."

In conſequence of this bequeſt, the Society, willing to tranſmit to poſterity the reſemblance of their Benefactors, having applied to the Gentlemen above named, Executors to Mr. Earle, have obtained from them a Drawing, which is ſaid to have been, at the time it was taken, a very good likeneſs of him: from this Drawing, the Print, which ſerves as a Frontiſpiece to this Volume, has been engraved; and, it is preſumed, the Public will hereby ſee what attention the Society pay to thoſe who ſhall contribute to encourage and ſupport the views and intention of the Inſtitution.

As

As the diſpoſition of the various parts which conſtitute the Volumes of the Tranſactions of this Society, and which has been followed during ſome years, is found fully to anſwer the end propoſed, no alteration is made therein: it may, therefore, be unneceſſary to ſay more on that head, but proceed to ſtate to the Reader the new Objects of Reward which have this Seſſion been adopted, and give ſome reaſons for the introduction of them.

At Claſs 100, under the head of Agriculture, a new Premium will be found for harveſting Corn in Wet Weather. It is many years ſince the Society firſt offered a Premium for diſcovering a Method of making Hay in Wet Weather; and however difficult the accompliſhing that end may appear, yet the ineſtimable advantages the Public would receive, if a good means of doing it could be diſcovered, and the pleaſing reflexion, that many things, formerly thought impracticable, have of late years, from the improvements in mechanical and chemical knowledge, been re-

duced to practice, has induced the Society to offer a Reward for Harveſting Corn in unpropitious ſeaſons, an object peculiarly intereſting to mankind in general, and more particularly ſo to this kingdom. Let us therefore hope, that, by the perſeverance of the Society, and the ingenuity of the Public, ſome methods may be found to alleviate thoſe inconveniences which this country, from its inſular ſituation, is ſo peculiarly ſubjected to.

In a former Volume of theſe Tranſactions, it has been clearly proved, by the moſt ſatisfactory evidence, that Opium of the fineſt quality has been, and conſequently may be, produced in this climate. It remains therefore now to try, whether it can be obtained in ſuch quantity, and at ſuch price, as may make it an article of trade: to aſcertain this fact, the Society have, in this Volume, firſt offered Premiums for preparing Opium in large quantities, in England. When the great importance of this drug in medicine, and the abominable adulterations it is liable to, are

conſidered, it will appear to every judicious obſerver, that a more proper object of the attention and encouragement of the Society can hardly be found.

Under the Claſs of Polite Arts, the Society have this year offered their Silver Medallion, in conformity to the Will of the late John Stock, of Hampſtead, Eſq. for a Drawing of the Statue of the late Joſhua Ward, Eſq. which was preſented by the heir of that gentleman to the Society, and placed, with peculiar propriety, in their Great Room, Mr. Ward having been the perſon to whom this kingdom owes the diſcovery of making Vitriolic Acid, on a large ſcale of buſineſs, from Sulphur, and thereby eſtabliſhing a Manufacture of the utmoſt importance to the Dyers, Calico-Printers, &c. of this country.

The frequent accidents which happen to paſſengers in carriages, from the horſes taking fright, and the dreadful conſequences to perſons employed in the manufacturing Gunpowder, from the exploſion of the mills, have induced the Society, this

year, to offer conſiderable Rewards for the diſcovery of ſuch means as may obviate thoſe inconveniences and prevent ſuch diſaſters in future.

It has hitherto been the cuſtom, ſince the ſeparation of the United States of America from this Country, to confine the Premiums offered by the Society, under the Claſs of Colonies and Trade, to the Iſlands in the Weſt-Indies; but information having been received that a particular ſpecies of Cotton was produced in ſome of the Britiſh Settlements in Indoſtan, which might be of uſe in the Manufactures of this kingdom, an honorary Premium has been this Seſſion offered for importing a quantity of ſuch Cotton, that a fair trial may be made of it. The ſame alſo may be ſaid of Annatto and Cochineal, both which uſed to be imported at a conſiderable annual expence from foreign countries, but which, from accounts lately received, there ſeems great reaſon to believe, may, under proper encouragement, be produced in ſome of

thoſe

thoſe parts of the Eaſt-Indies that are under the dominion of the Britiſh Government.

It is preſumed, that whoever attentively peruſes the various Papers which form the moſt conſiderable part of this Volume, will receive ſatisfaction at finding the progreſs making in the ſeveral Departments that are the more immediate objects of the Society's attention and encouragement:—as, in Agriculture, it muſt be highly pleaſing to obſerve the quantity of Trees of various ſorts planted; the number of Acres of Land improved by draining, and other kinds of culture, ſome of which have taken place in the diſtant and mountainous parts of the kingdom, where, in general, cultivation has hitherto made but ſlow progreſs; but it is hoped and believed the examples now ſet before the inhabitants of thoſe diſtricts will be attended with the moſt beneficial advantages, not only in their immediate neighbourhood, but ultimately to the country at large.

It was mentioned in the Preface to the Fourteenth Volume of theſe Tranſactions,

that the Society had been induced, from the high price of Wheat, to offer a Premium, in the Claſs of Chemiſtry, to any perſon who ſhould prepare a quantity of Starch from a material, not the food of Man: in conſequence of this offer, the Society has this Seſſion received a proper quantity of Starch, manufactured from the Roots of the *Arum Maculatum*, a plant hitherto not generally applied to that purpoſe, but which is known to grow ſpontaneouſly in almoſt every county.

The Reader will find, in the ſubſequent pages, a full account, under the head of Polite Arts, of a method that has been ſucceſsfully practiſed for transferring Pictures from Pannels or Walls to Canvaſs—an art univerſally allowed to be highly uſeful: and as three Pictures ſo transferred, one of them from the wall of a ſtair-caſe, and the others from oak boards, were produced to the Society, there can be no doubt of the practicability of the proceſs. It muſt be allowed that, in the Gentleman's Magazine for the year 1753, the firſt account of a proceſs for

reſtoring decayed Paintings ſeems to have been publiſhed in the Engliſh language; and, in the Appendix to the Second Volume of the Handmaid to the Arts, printed in 1764, a proceſs very ſimilar to that in the Gentleman's Magazine is inſerted; but, from the nature of the *Aqua-fortis*, and ſome other materials therein recommended to be uſed, it ſeems altogether improbable that either of thoſe methods could anſwer the end propoſed: and as what Mr. Salmon has now given to the Society, and is printed in this Volume, has been fairly and experimentally tried, it will be very pleaſing to the Society to be further informed of the merits of the proceſs by any perſons who may be induced to make further trials of it.

It is now ſeveral years ſince the Society firſt offered a Premium for the beſt practical and economical plan for the Maintenance and Employment of the Poor in Pariſh Workhouſes. A claim for that Premium has this Seſſion been produced; and although the Diſſertation ſent in diſcovered conſiderable

conſiderable merit as a literary performance, and contained many obſervations practically uſeful relative to the Management of the Poor, yet, as it did not fully anſwer the intention of the Society in offering the Premium, the Candidate could not be conſidered as entitled to the whole Reward; but, in conſideration of the merit of the work, Twenty-five Guineas were voted to him, and the publication of the paper ſubmitted to the author, who has engaged to print it.

Among the various Contrivances, under the head of Mechanicks, that have been produced to the Society in the courſe of this Seſſion, and which are fully deſcribed and illuſtrated by plates in this Volume, a very conſiderable improvement will be ſeen in the conſtruction of the Preſs uſed for Packing Bale Goods, as well as in the Chaff-Cutter; both which, it is preſumed, will be found of great utility, and readily applicable to the purpoſes for which they are intended.

Hitherto mention has only been made in this Preface of ſome of the honorary and pecuniary

pecuniary Rewards that have been beſtowed during the Seſſion of 1796 and 1797; but it may not be improper here to ſay, that the Public Thanks have been alſo given to various Societies and Individuals for Preſents received, and ſuch other attention to the views of this Inſtitution as they may have thought proper to beſtow on this Society. Among theſe muſt be particularly enumerated Lord Romney, and Lewis Majendie, Eſq. to the former of whom the Society are obliged for a large quantity of the Seed of the Swediſh Turnep, and, to the latter, for a Sack of Wheat of a particularly fine quality; both of which have been diſtributed among thoſe Members who are moſt likely to make fair trials of them. To Dr. Evans, of Shrewſbury, and to General Melville, Thanks have alſo been voted: to Dr. Evans, for the valuable preſent of two Maps of North Wales, which are reſerved in the Society's Collection; and to General Melville, for his firſt having ſet apart a quantity of Land, in the Iſland of St. Vincent, for the purpoſe of a Botanic Garden,

in

in the year 1765, when he was Governor of the ceded Iſlands in the Weſt-Indies, and afterwards by his zealous exertions, encouragement, and care, bringing the ſame to a great degree of perfection.

It remains now only thus publicly to invite the ingenious to continue to ſubmit their works to the inſpection of the Society, from whom they will not only obtain a due portion of honour and profit, but may be aſſured their names will be tranſmitted to poſterity, among thoſe who have been the chief inſtruments in promoting the intereſts, the riches, and the ſubſtantial glory of their Country, by aſſiſting to increaſe the Arts, the Manufactures, and the Commerce of the Kingdom, from whence only ſuch intereſt, ſuch riches, and ſuch glory, can be derived.

CONTENTS.

CONTENTS.

	Page
Preface	
Premiums offered in 1796	1-112
Papers in Agriculture	114-234
Papers in Chemiſtry	237-240
Papers in Polite Arts	243-262
Papers in Mechanicks	264-284
Rewards beſtowed	285
Preſents received	295
Catalogue of Models and Machines	301
Liſt of Officers	305
Liſt of Members	309
Index	359

PREMIUMS

OFFERED BY THE

SOCIETY

FOR THE ENCOURAGEMENT OF

ARTS, MANUFACTURES,

AND

COMMERCE,

IN

THE YEAR M.DCC.XCVII.

TO THE

PUBLIC.

ADELPHI-BUILDINGS,
April 13, 1797.

THE chief objects of the attention of the Society for the encouragement of Arts, Manufactures, and Commerce, in the application of their Rewards, are, ingenuity in the ſeveral branches of the POLITE and LIBERAL ARTS, uſeful Diſcoveries and Improvements in AGRICULTURE, MANUFACTURES, MECHANICKS, and CHEMISTRY, or the laying open any ſuch to the Public; and, in general, all ſuch uſeful Inventions, Diſcoveries, or Improvements (though not mentioned in the Book of Premiums), as may appear to have a tendency to the advantage of Trade and Commerce. The Society therefore, in purſuance of their plan, propoſe to beſtow the following Premiums.

Premiums for Planting and Huſbandry.

Claſs 1. ACORNS. For having ſet, between the firſt of October, 1796, and the firſt of April, 1797, the greateſt quantity of land, not leſs than ten acres, with Acorns, with or without ſeeds, cuttings, or plants of other trees, at the option of the Candidate; and for effectually fencing and preſerving the ſame, in order to raiſe timber; the GOLD MEDAL.

2. For the ſecond greateſt quantity of land, not leſs than five acres, ſet agreeably to the above conditions, the SILVER MEDAL.

CERTIFICATES of ſetting agreeably to the above conditions, and that there are not fewer than three hundred young Oaks on each acre, to be delivered to the Society on or before the firſt Tueſday in November, 1797.

3, 4. The ſame Premiums are extended one year further.

CERTI-

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1798.

5, 6. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1799.

7, 8. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1800.

9. RAISING OAKS. To the perſon who ſhall have raiſed, ſince the year 1793, the greateſt number of Oaks, not fewer than five thouſand, either from young plants, or acorns, in order to ſecure a ſucceſſion of oak timber in this kingdom; the GOLD MEDAL.

10. For the next greateſt number, not fewer than three thouſand, the SILVER MEDAL.

CERTIFICATES that there were on the land, at leaſt the number of young Oak-trees required, in a thriving condition, two years after the planting, with an account of the methods purſued in making and managing the plantation, to be produced to the Society on or before the firſt Tueſday in January, 1798.

11, 12. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

13, 14. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1800.

15. ASCERTAINING THE BEST METHOD OF RAISING OAKS. To the perſon who ſhall aſcertain in the beſt manner, by actual experiments, the comparative merits of the different modes of raiſing

ſing Oaks for timber, either from acorns ſet on land properly grubbed and tilled; from acorns ſown at random among buſhes, fern, or other cover; or from young plants, previouſly raiſed in nurſeries, and tranſplanted; regard being had to the expence, growth, and other reſpective advantages of the ſeveral methods; the GOLD MEDAL:

The ACCOUNTS and proper CERTIFICATES to be produced to the Society on or before the firſt Tueſday in November, 1797.

16. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in November, 1798.

17. OAK TIMBER IN COMPASS FORMS. To the perſon who ſhall aſcertain, by actual experiments, the beſt method of training young Oaks, ſo as to form Compaſs Timber for Ship-building, the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES of the number of Oak-plants, not fewer than one hundred, that have been traíned; and that they promiſe, in the opinion of perſons experienced in ſhip-building, to anſwer the purpoſe intended; to be delivered to the Society on or before the laſt Tueſday in December, 1805.

It is required that with the Certificates there be ſent particular accounts of the age of the trees, when they were begun to be trained, and the methods purſued in training them.

Should any perſon have already engaged in training Oaks for the above purpoſe, any information on the ſubject will be thankfully received by the Society.

18. CHESNUTS. For having ſown or ſet, between the firſt of October, 1796, and the firſt of April, 1797, the greateſt quantity of dry loamy land, not leſs than ſix acres, with Spaniſh Cheſnuts, with or without

without ſeeds, cuttings, or plants of other trees adapted to ſuch ſoil, at the option of the Candidate; and for effectually fencing and preſerving the ſame, in order to raiſe timber; the GOLD MEDAL.

19. For the ſecond greateſt quantity, not leſs than four acres, the SILVER MEDAL.

CERTIFICATES of ſowing or ſetting agreeably to the above conditions, and that there are not fewer than three hundred Cheſnut plants, in a thriving ſtate, on each acre, to be delivered to the Society on or before the firſt Tueſday in November, 1797.

20, 21. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1798.

22, 23. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1799.

24, 25. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1800.

26. ELM. For having planted the greateſt number of the Engliſh Elm, not leſs than eight thouſand, between the twenty-fourth of June, 1795, and the twenty-fourth of June, 1796; and for the having effectually fenced and preſerved the ſame, in order to raiſe timber; the GOLD MEDAL.

27. For the ſecond greateſt number, not leſs than five thouſand, the SILVER MEDAL.

CERTIFICATES of the having planted agreeably to the above conditions, that the plants were in a healthy and thriving ſtate

two years at leaſt after making the plantation, and ſpecifying the diſtance of the plants, to be delivered to the Society on or before the firſt Tueſday in April, 1798.

28, 29. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in April, 1799.

30, 31. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in April, 1800.

32, 33. The ſame premiums are to be extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in April, 1801.

34. LARCH. For having planted out between the twenty-fourth of June, 1794, and the twenty-fourth of June, 1795, the greateſt

greateſt number of Larch-trees, not fewer than five thouſand; and for having effectually fenced and preſerved the ſame, in order to raiſe timber; the GOLD MEDAL.

35. For the next greateſt number, not fewer than three thouſand, the SILVER MEDAL.

CERTIFICATES of the number of plants, that they were in a healthy and thriving ſtate two years at leaſt after they were planted out, with a general account of the methods uſed in making the plantation, to be delivered to the Society on or before the the laſt Tueſday in December, 1797.

36, 37. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1798.

38, 39. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1799.

40, 41. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1800.

42, 43. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1801.

N. B. The Larch-trees may be either planted, mixed with other trees, or by themſelves, as may beſt ſuit the convenience of the planter.

44. SILVER FIR. For having planted out, between the twenty-fourth of June, 1793, and the twenty-fourth of June, 1794, in a mixed plantation of foreſt-trees, or ſeparate, according to the option of the Candidate, the greateſt number of Silver Firs,

Firs, not fewer than two thouſand; and for having effectually fenced and preſerved the ſame, in order raiſe timber; the GOLD MEDAL.

45. For the next greateſt number, not fewer than one thouſand, the SILVER MEDAL.

CERTIFICATES of the number of plants, that they were in a healthy and thriving ſtate two years at leaſt after they were planted out, with a general account of the methods uſed in making the plantation, to be delivered to the Society on or before the laſt Tueſday in December, 1797.

46, 47. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1798.

48, 49. The ſame premiums are extended one year further.

CER-

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1799.

50. OSIERS. To the perſon who ſhall have planted, between the firſt of January and the firſt of June, 1797, the greateſt quantity of land, not leſs than five acres, with thoſe kinds of Willows, commonly known by the names of Oſier, Spaniard, or New-kind, fit for the purpoſe of baſket-makers, not fewer than twelve thouſand plants on each acre; the GOLD MEDAL, or THIRTY GUINEAS.

51. For the ſecond greateſt quantity of land, not leſs than three acres, the SILVER MEDAL, or TEN GUINEAS.

CERTIFICATES of the planting, and that the plants were in a thriving ſtate five months at leaſt after the planting, to be produced on or before the laſt Tueſday in November, 1797.

52.

52, 53. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in November, 1798.

54. ALDER. For having planted, in the year 1794, the greateſt number of Alders, not leſs than three thouſand; the GOLD MEDAL.

CERTIFICATES of the number of plants, and that they were in a thriving ſtate two years at leaſt after being planted, to be delivered to the Society on or before the laſt Tueſday in December, 1797.

55. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1798.

56. The ſame premium is extended one year further.

CERTI-

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1799.

57. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1800.

58. ASH. For having ſown or ſet, in the year 1794, the greateſt quantity of land, not leſs than ſix acres, with Aſh for timber, with or without ſeeds, cuttings, or plants of ſuch other trees as are adapted to the ſoil; the GOLD MEDAL.

59. For the next greateſt quantity, not leſs than four acres, the SILVER MEDAL.

CERTIFICATES of the ſowing or ſetting agreeably to the above conditions; that there are not fewer than one hundred Aſh plants on each acre, in a thriving and

healthy condition, two years at leaſt after the ſowing or ſetting, with a general account of the methods uſed in making the plantation; to be delivered to the Society on or before the laſt Tueſday in December, 1797.

60, 61. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1798.

62, 63. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1799.

64, 65. The ſame premiums are extended one further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1800.

66,

66, 67. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1801.

68. TIMBER TREES. To the perſon who ſhall have encloſed, planted, or ſown, the greateſt number of acres, not leſs than ten, with the beſt ſorts of Foreſt-trees, adapted to the ſoil, for timber, between the firſt of October, 1793, and the firſt of *May*, 1795; the GOLD MEDAL.

An account of the methods uſed in making the plantations, and of the nature of the ſoil, together with proper Certificates that the trees were in a thriving and healthy ſtate two years at leaſt after making the plantation, to be delivered to the Society on or before the firſt Tueſday in November, 1797.

69. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in November, 1798.

70. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in November, 1799.

71. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in November, 1800.

N. B. With the above Foreſt-trees, the ſeeds, cuttings, or plants, of ſuch other trees as are adapted to the ſoil, and proper for underwood, may or may not be intermixed.

72. PLANTING ORCHARDS. To the perſon who ſhall plant an Orchard after the month of Auguſt in the year 1796, in

in the moſt judicious manner, not leſs than four acres, the GOLD MEDAL, or FIFTY GUINEAS.

73. For the next in merit, the SILVER MEDAL, or THIRTY GUINEAS.

The proof of the value of the improvement of the Orchard ſhall depend on the clear product of the greateſt quantity of fine marketable fruit, to be produced during three ſucceſſive years after the year 1812, and ſold at any public market in England or Wales. Each Perſon who propoſes to become a Candidate for theſe Premiums muſt ſend an account of the number of trees, their culture, pruning, and every circumſtance which can in the leaſt throw any light upon the ſubject; which information will be regiſtered, with a view to form a ſyſtem of rational culture.

74. And that Gentlemen may be induced to come forward, and make and preſerve ſuch plantations,—The perſon who can produce an ORCHARD which, at the end

of three years after planting, ſhall ſhew the greateſt promiſe of ſucceſs, ſhall be entitled to the GOLD MEDAL, or THIRTY GUINEAS.

The merits of the two firſt-mentioned Premiums being to be aſcertained by the fruit; the merit of the third Premium muſt be aſcertained by the judicious number of trees planted, the ſtraitneſs, clearneſs, and freedom of growth of the ſeveral trees; and that all the young branches run free, and at due diſtance from each other, without any galling or canker.

CERTIFICATES of the forming the Orchard, the ſoil and aſpect of the plantation, the ſale and product of the fruit for which the claims for the Premiums, Claſſes 72 and 73, are intended to be made, muſt be delivered to the Society on or before the firſt Tueſday in November, 1815; and the Certificate in claim of the Premium, Claſs 74, muſt be delivered to the Society on or before the firſt Tueſday in November, 1799.

N. B.

N. B. However expert the Orchardiſt may be in general information and attention, much will depend on ſoil, expoſure, culture, and an eaſy communication to convey the fruit to market; for every field, however valuable in other reſpects, may not be proper for an Orchard.

Any wood the Orchardiſt may chooſe to raiſe for ſhelter to ſuch plantation, is not to be meaſured as part of the Orchard, as the wood will more than ſupport its own expence.

75. 76, 77. The foregoing Premiums for Orchards, from Claſs 72 to Claſs 74, incluſive, are extended one year further. The claims for the Premiums, Claſs 72 and 73, to be delivered to the Society on or before the firſt Tueſday in November, 1816; and the Certificate in claim of the Premium, Claſs 74, muſt be delivered on or before the firſt Tueſday in November, 1800.

*** *The Candidates for planting all kinds of Trees are to certify, that the reſpective*

Plantations are properly fenced and ſecured, and particularly to ſtate the condition the plants were in at the time of ſigning ſuch Certificates.

Any information which the Candidates for the foregoing Premiums may chooſe to communicate, relative to the methods made uſe of in forming the Plantation, or promoting the growth of the ſeveral Trees, or any other obſervations that may have occurred on the ſubject, will be thankfully received.

78. SECURING PLANTATIONS OF TIMBER-TREES. To the perſon who ſhall give to the Society the moſt ſatisfactory Account, founded on experience, of the moſt effectual and leaſt expenſive method of ſecuring young plantations of timber-trees, from Hares and Rabbits, as well as Sheep and larger cattle, which at the ſame time ſhall be leaſt ſubject to the depredations of wood-ſtealers, the SILVER MEDAL, or TWENTY GUINEAS.

The

The ACCOUNTS and CERTIFICATES of the efficacy of the method, to be produced to the Society on or before the firſt Tueſday in November, 1797.

79. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in November, 1798.

80. PREVENTING THE BLIGHT ON FRUIT-TREES. To the perſon who ſhall diſcover to the Society the beſt and moſt effectual method of preventing the Blight on Fruit-trees, ſuperior to any hitherto known or practiſed, and verified by actual and comparative experiments, the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be delivered to the Society on or before the ſecond Tueſday in November, 1797.

81.

81. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1798.

82. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1799.

83. TAKING OFF THE ILL EFFECTS OF BLIGHTS. To the perſon who ſhall diſcover to the Society the beſt and moſt effectual method of taking off the ill effects of Blights on Fruit-trees, ſuperior to any hitherto known or practiſed, and verified by actual and comparative experiments, the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in February, 1798.

84.

84. COMPARATIVE CULTURE OF WHEAT. For the beſt ſet of experiments, made on not leſs than eight acres, four of which to be ſown broad-caſt, and four drilled, to aſcertain whether it is moſt advantageous to cultivate Wheat by ſowing it in the common broad-caſt way, or by drilling it in equidiſtant rows, hoeing the intervals; the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS.

It is required that an account of the expence attending each mode of culture, with proper CERTIFICATES of the nature and condition of the land on which the experiments are made, together with an account of the produce of the Corn, be produced to the Society on or before the firſt Tueſday in February, 1798.

85. The ſame premium is exended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the firſt Tueſday in February, 1799.

86.

86. COMPARATIVE CULTURE OF WHEAT. For the beſt ſet of experiments, made on not leſs than eight acres of land, four of which to be ſown broad-caſt, and four dibbled, to aſcertain whether it is moſt advantageous to cultivate Wheat by ſowing it in the common broad-caſt way, or by dibbling it in equidiſtant rows, hoeing the intervals; the GOLD MEDAL, or the SILVER MEDAL and THIRTY GUINEAS.

It is required that an account of the expence attending each mode of culture, with proper Certificates of the nature and condition of the land on which the experiments are made, together with an account of the produce of the Corn, be produced to the Society on or before the firſt Tueſday in February, 1798.

86*. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to to be delivered on or before the firſt Tueſday in February, 1799.

87. BEANS AND WHEAT. To the perſon who ſhall have planted or drilled, between the firſt of December, 1795, and the firſt of April, 1796, the greateſt quantity of land, not leſs than ten acres, with Beans, and ſhall have ſown the ſame land with Wheat in the ſame year 1796; TWENTY GUINEAS.

It is required that an account of the ſort and quantity of Beans, the time of planting or drilling, and of reaping or mowing them, the produce per acre threſhed, the application of the ſtraw, the expence of planting or drilling, hand or horſe hoeing, the diſtance of the rows, and the quality of the ſoil, together with CERTIFICATES of the number of acres, and that the land was actually ſown with Wheat in the year 1796, be produced on or before the firſt Tueſday in November, 1797.

N. B. The Society have been informed, that Beans may be drilled or planted ſo early as the month of December, from whence may be derived the advantage of an early harveſt;

harveſt; in which caſe the ſtraw will be far more valuable than that from a later planting or drilling.

88. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the firſt Tueſday in November, 1798.

89. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the firſt Tueſday in November, 1799.

90. TURNEPS. For the beſt account of experiments made on at leaſt ſix acres of land, to determine the comparative advantage of the drill or broad-caſt method in the cultivation of Turneps; the GOLD MEDAL, or the SILVER MEDAL and TEN GUINEAS.

The

The ACCOUNTS, with proper CERTIFICATES, to be delivered on or before the third Tueſday in March, 1798.

It is required that one half of the land be drilled, and the other half ſown broadcaſt.

91. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the third Tueſday in March, 1799.

92. VEGETABLE FOOD. For the beſt account, confirmed by experiments, of the Vegetable Food (Cabbages and Turneps excepted), growing in the months of March and April, that will moſt increaſe the milk in Mares, Cows, and Ewes, at that ſeaſon; provided ſuch food can be cultivated at an expence that will admit of its being applied to the above purpoſes; the GOLD MEDAL, or the SILVER MEDAL and TEN GUINEAS.

CER-

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1797.

93. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1798.

94. POTATOES FOR FEEDING CATTLE AND SHEEP. To the perſon who, in the year 1796, ſhall have cultivated the greateſt quantity of land, not leſs than four acres, with Potatoes, for the purpoſe of feeding Cattle and Sheep; the GOLD MEDAL, or THIRTY GUINEAS.

CERTIFICATES, with ſatisfactory Accounts of the expence and manner of cultivating the Potatoes, aud the application of them to the above purpoſes only, and the ſucceſs that has attended the uſe of them, to be delivered to the Society on or before the ſecond Tueſday in November, 1797.

95.

95.* The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1798.

N. B. Should any Gentleman have already cultivated Potatoes for the purpoſes mentioned in the above advertiſement, any information from him on the ſubject will be thankfully received by the Society.

96. CULTIVATING ROOTS AND HERBAGE FOR FEEDING SHEEP *AND BLACK* CATTLE. For the moſt ſatisfactory experiments, made between Michaelmas, 1796, and the firſt of May, 1797, in order to aſcertain which of the following plants can be cultivated and houſed or otherwiſe ſecured for winter-fodder, to the greateſt advantage, viz.

Turnep-rooted Cabbage,	Carrots,
Turnep Cabbage,	Parſneps,
Turneps,	Potatoes;

the GOLD MEDAL.

The ACCOUNTS, with proper Certificates, to be produced on or before the firſt Tueſday in November, 1797.

It is required that the above roots be taken off the land by the laſt day of October, 1796; that a crop of Wheat may be ſown in the ſame ground, and the particulars of the ſowing and planting, taking up, produce, preſerving, and application to the feeding Sheep and Black Cattle, be ſpecified. The comparative experiments muſt be made between two or more of any of the above-mentioned plants, and not leſs than one acre be cultivated with each particular kind of plant.

N. B. Great advantage will ariſe to the Farmer occupying land in the neighbourhood of extenſive commons, from the conveniency of keeping large flocks of Sheep, and herds of Cattle, if the difficulty of ſupporting them through the winter was obviated by a due knowledge of this practice.

97. PARSNEPS. To the perſon who, in the year 1797, ſhall cultivate the greateſt quantity of land, not leſs than five acres, with Parſneps, for the ſole purpoſe of feeding Cattle or Sheep; the GOLD MEDAL, or THIRTY GUINEAS.

CER-

CERTIFICATES of the quantity of land ſo cultivated, with a particular account of the nature and quality of the ſoil and produce, and alſo of the condition of the Cattle or Sheep fed with the Parſneps, and the advantages reſulting from the practice, to be produced to the Society on or before the ſecond Tueſday in February, 1798.

98. The ſame premium is extended one year further.

The CERTIFICATES and ACCOUNTS to be produced on or before the ſecond Tueſday in February, 1799.

99. MAKING HAY IN WET WEATHER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, ſuperior to any hitherto practiſed, of making Hay in wet weather, the GOLD MEDAL or THIRTY GUINEAS.

A full account of the method employed, and of the expence attending the proceſs, with not leſs than fifty-ſix pounds of the Hay; and Certificates that at leaſt the pro-

duce of ſix acres of land has been made according to the method deſcribed, and that the whole is of equal quality with the ſamples; to be produced on or before the firſt Tueſday in January, 1798.

100. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

100.* HARVESTING CORN IN WET WEATHER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, ſuperior to any hitherto practiſed, of harveſting Corn in Wet Weather, the GOLD MEDAL, or THIRTY GUINEAS.

A full account of the method employed, and of the Expence attending the proceſs, with not leſs than two Sheaves of the Corn, and Certificates that at leaſt the produce of four acres has been harveſted according to the method deſcribed, and that the whole

whole is of equal quality with the ſamples, to be produced on or before the firſt Tueſday in January, 1798.

The ſame premium is extended one year further. SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

101. CULTIVATING THE TRUE RHUBARB. For having raiſed, before the end of the year 1797, the greateſt number of plants, not leſs than two thouſand, of Rheum Palmatum, or true Rhubarb, the GOLD MEDAL, or THIRTY GUINEAS.

CERTIFICATES of the number of plants, that they ſtand at leaſt four feet aſunder, that they have been in a thriving ſtate during the preceding ſummer, with an account of the ſoil, culture, and aſpect, to be produced on or before the ſecond Tueſday in February, 1798.

102. The ſame premium is extended one year further.

The CERTIFICATES to be produced on or before the ſecond Tueſday in February, 1799.

103. ASCERTAINING THE COMPONENT PARTS OF ARABLE LAND. To the perſon who ſhall produce to the Society the moſt ſatisfactory ſet of experiments, to aſcertain the due proportion of the ſeveral component parts of Arable Land, in one or more Counties in Great Britain, by an accurate analyſis of it; and who, having made a like analyſis of ſome poor land, ſhall, by comparing the component parts of each, and thereby aſcertaining the deficiencies in the poor ſoil, improve a quantity of it, not leſs than one acre, by the addition of ſuch parts as the former experiments ſhall have diſcovered to be wanting therein, and therefore probably the cauſe of its ſterility; the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the manurings, ploughings, and crops of the improved land, be the

the ſame after the improvement as before; and that a minute account of the produce in each ſtate, of the weather, and of the various influencing circumſtances, together with the method made uſe of in analyſing the ſoils, be produced, with proper CERTIFICATES, and the chemical reſults of the analyſis, which are to remain the property of the Society, on or before the laſt Tueſday in November, 1797.

It is expected that a quantity, not leſs *than ſix* pounds of the rich, of the poor, and of the improved ſoils, be produced, with the Certificates.

N. B. Among the methods or proceſſes made uſe of by Chemiſts, and called DRY or MOIST, the latter only appears adapted to the aſcertaining the reſpective proportions of the component parts of Arable earth. Dr. Shaw, in his Chemical Lectures; Dr. Home, in his Principles of Agriculture; Dr. George Fordyce, in his

Ele-

Elements of Agriculture; and Sir Torbern Bergman, in his "Diſſertation ſur les Terres Géoponiques;" have treated on theſe ſubjects.

104. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the laſt Tueſday in November, 1798.

105. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the laſt Tueſday in November, 1799.

106. FORMING AND APPLYING WATER MEADOWS. To the perſon who ſhall produce to the Society the moſt ſatisfactory account, verified by practice, of the principles on which Water Meadows ſhould be formed; and alſo point out the moſt valuable purpoſes to which they may be applied; the GOLD MEDAL, or THIRTY GUINEAS.

The

The ACCOUNTS to be produced to the Society on or before the third Tueſday in February, 1798.

107. IMPROVING LAND LYING WASTE. For the moſt ſatisfactory Account of the beſt method of improving any of the following ſoils, being land lying waſte or uncultivated, viz. Clay, Gravel, Sand, Chalk, Moor or Peat-earth and Bog; verified by experiments on not leſs than fifty acres of land; the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS.

108. For the next greateſt quantity of land, not leſs than twenty-five acres, the SILVER MEDAL and TEN GUINEAS.

To be produced, with proper CERTIFICATES, on or before the ſecond Tueſday in December, 1797.

The ſoil, manner of improvement, expence, and product, are required to be fully explained.

109.

109, 110. The ſame premiums are extended one year further.

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1798.

111, 112. The ſame premiums are extended one year further.

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1799.

113. MANURES. For the moſt ſatisfactory ſet of experiments, to aſcertain the comparative advantages of the following Manures, uſed as Top-dreſſings, on Graſs or Corn Land, viz. Soot, Coal-Aſhes, Wood-Aſhes, Lime, Gypſum, Night-ſoil; the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS.

It is required that the above experiments be made between two or more of the above-men-

mentioned Manures, and that not leſs than two acres of land be dreſſed with each Manure. An account of the nature of the ſoil, quantity and expence of the Manure, and crops, with CERTIFICATES, to be produced on or before the laſt Tueſday in February, 1798.

114. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the laſt Tueſday in February, 1799.

115. IMPROVING WASTE MOORS. For the improvement of the greateſt number of acres of Waſte Moor-Land, not leſs than one hundred, the GOLD MEDAL.

It is required that the land before improvement be abſolutely uncultivated, and in a great meaſure uſeleſs; that in its improved ſtate it be incloſed, cultivated, and divided into fields, ſufficient for the uſe and occupation of a tenant.

CER-

CERTIFICATES of the number of acres, of the quality of the Moor ſo improved, of the mode and expence of the improvement, the ſtate it is in as to the proportion of graſs to arable, and the average value thereof, to be produced on or before the firſt Tueſday in February, 1798.

116. The ſame premium is extended one year further.

CERTIFICATES to be produced on or or before the firſt Tueſday in February, 1799.

117. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in February, 1800.

118. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in February, 1801.

119.

119. GAINING LAND FROM THE SEA. To the perſon who ſhall produce to the Society an account of the beſt method, verified by actual experiment, of gaining Land from the Sea, not leſs than twenty acres, on the coaſt of England or Wales, the GOLD MEDAL.

CERTIFICATES of the quantity of Land, and that the experiments were begun after the firſt of January, 1792, to be produced to the Society on or before the firſt Tueſday *in October*, 1797.

N. B. The Society have been credibly informed, that land has been gained on the coaſt of Holland, by fixing rows of whiſps of ſtraw upright in the ſand, at about a foot diſtant from each other, or by fixing ſtakes at proper diſtances from each other, and wattling ſtraw-bands between them.

120. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1798.

The

121. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1799.

122. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1800.

123. MACHINE FOR DIBBLING WHEAT. To the perſon who ſhall invent the beſt Machine, to anſwer the purpoſe of Dibbling Wheat, by which the holes for receiving the grain may be made at equal diſtances and proper depths, the grain regularly delivered therein, and effectually covered; the SILVER MEDAL, or TWENTY GUINEAS.

The MACHINE, with CERTIFICATES that at leaſt three acres have been dibbled by it, to be produced to the Society on or be-

fore the ſecond Tueſday in January, 1798. Simplicity and cheapneſs in the conſtruction will be conſidered as principal parts of its merit.

124. MACHINE TO ANSWER THE PURPOSE OF REAPING OR MOWING CORN. For inventing a Machine to anſwer the purpoſe of mowing or reaping Wheat, Rye, Barley, Oats, or Beans, by which it may be done more expeditiouſly and cheaper than by any method *now* practiſed, provided it does not ſhed the corn or pulſe more than the methods in common practice, and that it lays the ſtraw in ſuch a manner as that it may by eaſily gathered up for binding; the SILVER MEDAL, or TEN GUINEAS.

The MACHINE, with CERTIFICATES that at leaſt three acres have been cut by it, to be produced to the Society on or before the ſecond Tueſday in December, 1797. Simplicity and cheapneſs in the conſtruction will be conſidered as principal parts of its merit.

125.

125. IMPROVED HOE. To the perſon who ſhall produce to the Society the moſt improved or beſt-conſtructed Horſe or Hand Hoe, ſuperior to any hitherto in uſe, for the purpoſe of clearing from weeds, and looſening the ſoil in the intermediate ſpaces of all crops of corn ſown in equidiſtant rows, and which ſhall earth up the young plants at the ſame time; the GOLD MEDAL, or TWENTY GUINEAS.

A HOE, with CERTIFICATES of its having been ſucceſsfully uſed, to be produced to the Society on or before the firſt Tueſday in December, 1797.

126. DESTROYING THE GRUB OF THE COCKCHAFER. To the perſon who ſhall diſcover to the Society an effectual method, verified by repeated and ſatisfactory trials, of deſtroying the Grub of the Cockchafer, or of preventing or checking the deſtructive effects which always attend Corn, Peas, Beans, and Turneps, when attacked by thoſe inſects; the GOLD MEDAL, or THIRTY GUINEAS.

The

The ACCOUNTS, with proper CERTIFICATES, to be produced on or before the firſt Tueſday in January, 1798.

127. DESTROYING THE WIRE-WORM. To the perſon who ſhall diſcover to the Society an effectual method, verified by repeated and ſatisfactory trials, of deſtroying the inſect called the Wire-worm, or of preventing or checking the deſtructive effects which always attend Corn, Beans, Peaſe, or Pulſe, when attacked by thoſe inſects; *the* GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be produced to the Society on or before the firſt Tueſday in January, 1798.

128. DESTROYING THE FLY ON HOPS, AND CATERPILLARS ON FRUIT-TREES AND CULINARY PLANTS. To the perſon who ſhall diſcover to the Society an eaſy and efficacious method of deſtroying the Fly on Hops,

and Caterpillars on Fruit-trees and culinary plants, ſuperior to any hitherto known or practiſed, the GOLD MEDAL, or THIRTY GUINEAS.

ACCOUNTS and CERTIFICATES, that the method has been effectually practiſed, on not leſs than ſix acres of Hop-ground, or an Orchard or Garden of not leſs than two acres, to be delivered to the Society on or before the firſt Tueſday in February, 1798.

129. CURE OF THE ROT IN SHEEP. To the perſon who ſhall diſcover to the Society the beſt and moſt effectual method of preventing or curing the diſeaſe called the Rot in Sheep, verified by repeated and ſatisfactory experiments, the GOLD MEDAL, or THIRTY GUINEAS.

It is expected that the Candidates furniſh accurate accounts of the nature, ſymptoms, and cure of the diſeaſe, together with the imputed cauſe thereof, and the actual or probable means of prevention, which, with pro-

proper CERTIFICATES, muſt be delivered to the Society on or before the firſt Tueſday in February, 1798.

130. PREVENTING AND CURING THE ILL EFFECTS OF THE FLY ON SHEEP. To the perſon who ſhall diſcover to the Society the moſt effectual method of preventing and curing the ill effects of the Fly on Sheep, the SILVER MEDAL, or THIRTY GUINEAS.

It is required that the method be aſcertained by repeated experiments, and that a CERTIFICATE of its efficacy be delivered to the Society on or before the firſt Tueſday in December, 1797.

131. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in December, 1798.

132. PROTECTING SHEEP. To the perſon who, in the year 1797, ſhall protect the greateſt number of Sheep, not fewer than five hundred, in bad ſeaſons, by houſing them in hovels, or ſheds; and give the moſt ſatisfactory account, verified by experiment, of the advantages ariſing from the practice of defending Sheep from the inclemency of the weather, by ſuch hovels, or ſheds; TWENTY GUINEAS.

A particular account of the experiments made, with the advantages ariſing therefrom, together with the expence, and CERTIFICATES of its utility, to be produced to the Society on or before the firſt Tueſday in March, 1798.

133. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the firſt Tueſday in March, 1799.

N.B.

N. B. It is at the option of the Candidates to have their hovels fixed, or moveable; and it is required, that the CERTIFICATES ſhall ſpecify the length of time the Sheep were under cover, and the manner in which they were maintained during that time; together with the general method of managing them in the ſaid hovels.

Premiums for Diſcoveries and Improvements in Chemiſtry, Dying, and Mineralogy.

134. BARILLA. For the greateſt quantity of Merchantable Barilla, not leſs than half a ton, made from Spaniſh Kali, or any other plant raiſed in Great Britain; the GOLD MEDAL, or THIRTY GUINEAS.

A ſample, of not leſs than twenty-eight pounds, with a CERTIFICATE that half a ton has been made, to be produced on or before the firſt Tueſday in January, 1798.

135. PRESERVING SEEDS OF VEGETABLES. For the beſt method of preſerving the ſeeds of Plants, in a ſtate fit for vegetation, a longer time than has hitherto been practiſed, ſuch method being ſuperior to any known to the public, and verified by ſufficient trial; to be communicated to the Society on or before the firſt Tueſday in December, 1797; the GOLD MEDAL, or THIRTY GUINEAS.

136.

136. The ſame premium is extended one year further; the ACCOUNTS to be produced on or before the firſt Tueſday in December, 1798.

137. METHOD OF SEPARATING THE SACCHARINE SUBSTANCE OF TREACLE IN A SOLID FORM. To the perſon who ſhall diſcover to the Society the beſt method of ſeparating the Saccharine Subſtance of Treacle in a ſolid form, at ſuch an expence as will render it advantageous to the public; the GOLD MEDAL, or FIFTY GUINEAS.

A quantity of the Saccharine Subſtance, ſo ſeparated, in a ſolid form, not leſs than *thirty* pounds weight, with an account of the proceſs, and CERTIFICATES that not leſs than one hundred weight has been prepared, to be produced to the Society on or before the firſt Tueſday in February, 1798.

138. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in February, 1799.

139. PRESERVING FRESH-WATER SWEET. To the perſon who ſhall produce to the Society the beſt account, verified by ſatisfactory trials, of an efficacious method of preſerving Freſh-water ſweet during long voyages; the GOLD MEDAL, or FIFTY GUINEAS.

ACCOUNTS, and full deſcriptions of the methods made uſe of, in order that it may be known that nothing injurious enters therein, to be produced to the Society, with at leaſt thirty gallons of Water ſo preſerved, and proper CERTIFICATES, on or before the laſt Tueſday in December, 1797.

140. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the laſt Tueſday in December, 1798.

141. DESTROYING SMOKE. For the beſt account, aſcertained by proper experiments, of a method of deſtroying or

burning the Smoke of Fires belonging to Steam-Engines, Furnaces employed in calcining or ſmelting Metals, or other large works, in order to prevent annoyance to the neighbourhood; to be produced on or before the firſt Tueſday in January, 1798; the GOLD MEDAL, or THIRTY GUINEAS.

142. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the firſt Tueſday in January, 1799.

143. CONDENSING SMOKE. To the perſon who ſhall invent the beſt method by which the Smoke of Steam-Engines, Brewhouſes, Sugar-houſes, or Furnaces, may be advantageouſly condenſed and collected in the form of Tar, or ſome other uſeful material; the GOLD MEDAL, or FIFTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES of the method having been ſucceſsfully employed, and ſpecimens of the materials

rials produced, to be delivered to the Society on or before the firſt Tueſday in December, 1797.

144. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in December, 1798.

145. CANDLES FROM RESIN. To the perſon who ſhall diſcover to the Society the beſt method of ſo reducing the inflammable quality of Reſin, as to adapt it to the purpoſes of making Candles fit for common uſe, at a price much inferior to that of Candles made of Tallow only; the GOLD MEDAL, or THIRTY GUINEAS.

Six pounds at leaſt of the Candles ſo prepared, with an ACCOUNT of the proceſs, to be delivered to the Society on or before the firſt Tueſday in December, 1797.

146.

146. REFINING WHALE OR SEAL OIL. For diſcloſing to the Society an effectual method of purifying Whale or Seal Oil from the glutinous matter that encruſts the wicks of lamps, and extinguiſhes the light, though fully ſupplied with oil; the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the whole of the proceſs be fully and fairly diſcloſed, in order that ſatisfactory experiments may be made by the Society to determine the validity of the claim; and CERTIFICATES that not *leſs than* twenty gallons have been purified according to the proceſs delivered in, togegether with two gallons of the oil, in its unpurified ſtate, and two gallons ſo refined, be produced to the Society on or before the ſecond Tueſday in February, 1798.

147. The ſame premium is extended one year further.

CERTIFICATES and SAMPLES to be produced on or before the ſecond Tueſday in February, 1799.

148.

148. CLEARING FEATHERS FROM THEIR ANIMAL OIL. To the perſon who ſhall diſcover to the Society the beſt and moſt expeditious method, ſuperior to any hitherto practiſed, of clearing Gooſe-feathers from their offenſive Animal Oil, for the uſe of upholders, in making beds, cuſhions, &c. the GOLD MEDAL, or FORTY GUINEAS.

A quantity of ſuch Feathers, unſtripped, and ſo cleared, not leſs than forty pounds weight, with a full account of the proceſs, to be produced to the Society on or before the firſt Tueſday in February, 1798.

149. SUBSTITUTE FOR, OR PREPARATION OF, YEAST. For diſcovering to the Society an effectual Subſtitute for Yeaſt, or preparation of Yeaſt, which, after being kept ſix months, ſhall be fit for fermenting liquors, and raiſing bread; the GOLD MEDAL, or THIRTY GUINEAS.

Specimens

Specimens of the Subſtitute, or of the Preparation of Yeaſt, ſufficient for trials, together with a paper ſealed up, and containing an account of the compoſition of the Subſtitute, or method of preparing the Yeaſt, to be produced on or before the laſt Tueſday in November, 1797.

150. PROOF SPIRIT. To the Diſtiller who in the year 1797 ſhall make the greateſt quantity, not leſs than one hundred gallons, of a clean marketable Spirit, *from articles* not the food of man or cattle, equal in ſtrength or quality to the Proof Spirit now in uſe, and at a rate not higher than the ſpirit produced from corn or molaſſes; the GOLD MEDAL, or FIFTY GUINEAS.

Ten gallons of the ſpirit, together with proper CERTIFICATES, and a full account of the expence and mode of making it, to be produced to the Society on or before the firſt Tueſday in January, 1798.

151.

151. PRESERVING SALTED PROVISIONS FROM BECOMING RANCID OR RUSTY. To the perſon who ſhall diſcover to the Society the beſt, cheapeſt, and moſt efficacious method of preſerving Salted Proviſions from growing rancid or ruſty; the GOLD MEDAL, or THIRTY GUINEAS.

A full deſcription of the method, with proper CERTIFICATES that it has been found, on repeated trials, to anſwer the purpoſe intended, to be produced to the Society on or before the firſt Tueſday in February, 1798.

152. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in February, 1799.

153. INCREASING STEAM. To the perſon who ſhall diſcover to the Society a method, verified by actual experiments, of

of increaſing the quantity or the force of Steam, in Steam-Engines, with leſs fuel than is uſually employed, provided that in general the whole amount of the expences in uſing Steam-Engines may be conſiderably leſſened; the GOLD MEDAL, or THIRTY GUINEAS.

To be communicated to the Society on or before the firſt Tueſday in January, 1798.

N. B. As it is well known there are methods of preventing the ebullition of liquids by the addition of particular matters in the boiling, it is ſubmitted to the conſideration of the ingenious, whether, by the addition of ſome matters, or by ſome mechanical operations, the boiling and evaporation may not be increaſed.

154. PREVENTING THE DRY-ROT IN TIMBER. To the perſon who ſhall diſcover to the Society the cauſe of the Dry-Rot in Timber, and diſcloſe a certain method of prevention, ſuperior to any hitherto known; the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS of the cauſe, and method of prevention, confirmed by repeated experiments, to be produced to the Society on or before the ſecond Tueſday in December, 1797.

155. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1798.

156. FINE BAR-IRON. To the perſon, in England or Wales, who ſhall make the greateſt quantity of Bar-Iron, not leſs than ten tons, with Coak, from Coak Pigs, equal in quality to the beſt Iron imported from Sweden or Ruſſia, and as fit for converting into Steel; the GOLD MEDAL.

SAMPLES, not leſs than one hundred weight, with CERTIFICATES that the whole quantity is of equal quality, to be produced to the Society on or before the firſt Tueſday in January, 1798.

157.

157. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be delivered on or before the firſt Tueſday in January, 1799.

158. METHOD OF PREPARING WHITE LEAD, WHICH SHALL NOT BE PREJUDICIAL. To the perſon who ſhall diſcover to the Society a method of preparing White Lead, in a manner that ſhall not be prejudicial to the health of the workmen employed either in making or uſing it, and will anſwer all the purpoſes for which White Lead is at preſent uſed; the GOLD MEDAL, or FIFTY GUINEAS.

A quantity of the White Lead ſo prepared, with an account of the proceſs made uſe of, and CERTIFICATES that not leſs than one ton has been manufactured in the ſame manner, to be produced to the Society on or before the ſecond Tueſday in February, 1798.

159. SUBSTITUTE FOR THE BASIS OF PAINT. To the perſon who ſhall produce to the Society the beſt Subſtitute, ſuperior to any hitherto known, for the Baſis of Paint, equally proper for the purpoſe as the White Lead now employed; ſuch ſubſtitute not to be of a noxious quality, and which may be afforded at a price not materially higher than that of White Lead; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

A quantity of the Subſtitute, not leſs than fifty pounds weight, with an ACCOUNT of the proceſs uſed in preparing it, and CERTIFICATES that at leaſt one hundred weight has been manufactured, to be produced to the Society on or before the ſecond Tueſday in November, 1797.

160. The ſame premium is extended one year further.

r CERTIFICATES and ACCOUNTS to be produced on or before the ſecond Tueſday in November, 1798.

161. REFINING BLOCK TIN. To the perſon who ſhall diſcover to the Society the beſt method of purifying or refining *Block Tin*, in ſuch manner as to render it fit for the finer purpoſes to which *Grain Tin* is now ſolely applied, and at an expence that ſhall not render it higher in price than *Grain Tin*; the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES that not leſs than three tons have been refined or purified, with a full detail of the proceſs, and a quantity, not leſs than one hundred weight, of the Tin ſo refined, to be produced to the Society on or before the firſt Tueſday in November, 1797.

162. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1798.

163. GLAZING EARTHEN WARE WITHOUT LEAD. To the perſon who

ſhall diſcover to the Society the cheapeſt, ſafeſt, moſt durable, and moſt eaſily fuſible Compoſition, fit for the purpoſe of glazing the ordinary kinds of Earthen Ware, without any preparation of Lead, and preferable to any hitherto in uſe; the GOLD MEDAL, or THIRTY GUINEAS.

SPECIMENS of the Ware ſo glazed, with proper CERTIFICATES of its having ſucceeded, and a SAMPLE of the materials made uſe of, to be produced to the Society on or before the firſt Tueſday in February, 1798.

164. PURIFYING BRACKISH WATER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, verified by actual experiment, of Purifying or Reducing Brackiſh Water, which frequently ariſes from New Wells, made in particular places, to a natural ſweetneſs, fit for the uſe of families and for the purpoſe of cattle; the SILVER MEDAL and FIFTEEN GUINEAS.

Satisfactory CERTIFICATES that ſuch Brackiſh Water has been rendered perfectly ſweet, and uſed by the family to which ſuch Well may belong at leaſt three months afterwards, with an account of the method made uſe of in purifying the ſame, to be delivered to the Society on or before the ſecond Tueſday in February, 1798.

165. BLACK DYE ON COTTON. To the perſon who ſhall invent and produce to the Society a Black Dye on Cotton Yarn, ſuperior to any hitherto known or in uſe; the GOLD MEDAL, or THIRTY GUINEAS.

A full ACCOUNT of the proceſs, with CERTIFICATES that the Cotton thus dyed ſtands waſhing with ſoap, and a SAMPLE of the Yarn ſo dyed, not leſs than five pounds weight, to be produced to the Society on or before the firſt Tueſday in February, 1798.

166. PRESERVING IRON FROM RUST. To the perſon who ſhall invent and diſcover to the Society, a cheap com-

poſition, which ſhall effectually preſerve Wrought Iron from ruſt, the GOLD MEDAL, or FIFTY GUINEAS.

A full deſcription of the method of preparing the compoſition, with CERTIFICATES that it has ſtood at leaſt two years unimpaired, and expoſed to the atmoſphere during the whole time, to be produced to the Society, with ten pounds weight of the compoſition, on or before the firſt Tueſday in January, 1799.

167. The ſame premium is extended one year further.

The deſcription and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in January, 1800.

168. The ſame premium is extended one year further.

The deſcription and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in January, 1801.

169.

169. OPIUM. To the perſon who, in the year 1797, ſhall prepare the greateſt quantity, not leſs than twenty pounds weight, of Opium, from Poppies grown in Great Britain, and equal in quality to the beſt foreign Opium, the GOLD MEDAL, or FIFTY GUINEAS.

170. For the next greateſt quantity, not leſs than ten pounds weight, the SILVER MEDAL, or TWENTY GUINEAS.

SAMPLES of the Opium, not leſs than five pounds weight, with proper CERTIFICATES that the whole is of the ſame quality, to be produced to the Society, with a particular account of the method of cultivating the Poppies, and preparing the Opium, on or before the laſt Tueſday in February, 1798.

171, 172. The ſame premiums are extended one year further.

The SAMPLES, CERTIFICATES, and ACCOUNTS, to be produced to the Society on or before the laſt Tueſday in February, 1799.

Premiums for promoting the Polite Arts.

173. HONORARY PREMIUMS FOR DRAWINGS. For the beſt Drawing of any kind, made with Water-Colours, Crayons, Chalk, Black Lead, Pen, Indian Ink, or Biſter, by young Gentlemen under the age of twenty-one, ſons or grandſons of Peers or Peereſſes in their own right, of Great Britain or Ireland, to be produced on or before the firſt Tueſday in March, 1798, the HONORARY MEDAL of the Society IN GOLD.

174. The ſame IN SILVER for the next in merit.

175, 176. The ſame premiums will be given, on the like conditions, to young Ladies, daughters or grand-daughters of Peers, or Peereſſes in their own right, of Great Britain or Ireland.

177.

177. HONORARY PREMIUMS FOR DRAWINGS. For the beſt Drawing of any kind, made with Water-Colours, Crayons, Chalk, Black Lead, Pen, Indian Ink, or Biſter, by young Gentlemen under the age of twenty-one; to be produced on or before the firſt Tueſday in March, 1798; the GOLD MEDAL.

178. For the next in merit, the SILVER MEDAL.

179, 180. The ſame premiums will be given for Drawings by young Ladies.

N. B. As the foregoing Honorary Premiums are intended only for ſuch of the Nobility and Gentry as may hereafter become patrons or patroneſſes of the Arts; perſons profeſſing any branch of the Polite Arts, or any buſineſs dependent on the Arts of Deſign, or the ſons or daughters of ſuch perſons, will not be admitted Candidates in theſe Claſſes.

The

The following Premium (Claſs 181) is offered in conformity to the Will of the late John Stock, of Hampſtead, Eſq.

181. DRAWING. For the beſt Drawing, in Indian Ink, not leſs than eighteen inches high, of the Statue of the late Joſhua Ward, Eſq. in the Great-Room of the Society, to be produced on or before the third Tueſday in February, 1798, a SILVER MEDALLION, with the following engraved inſcription: *The Premium given by the Society for the Encouragement of Arts, Manufactures, and Commerce, in conformity to the Will of John Stock, of Hampſtead, Eſq.*

The Drawing to be left with the Society as their property.

N. B. Such perſons as propoſe to become Candidates for this premium will be admitted by the Regiſter, any day (Sundays or Wedneſdays excepted), between the hours of ten and two.

182.

182. DRAWINGS OF OUTLINES. For the beſt Outline, after an original group or caſt, in plaſter, of Human Figures, by perſons of either ſex, under the age of ſixteen, the principal figure not leſs than twelve inches; to be produced on or before the third Tueſday in February, 1798; the greater SILVER PALLET.

183. For the next in merit, the leſſer SILVER PALLET.

N. B. Theſe drawings are to be made on Paper, with Chalk, Black Lead, Indian Ink, or Biſter; and the original either to be produced to the Society, or to be referred to for their examination.

184. DRAWINGS OF LANDSCAPES. For the beſt Drawing of a Landſcape after nature, by perſons of either ſex, under twenty-one years of age, to be produced on or before the third Tueſday in February, 1798, the greater SILVER PALLET.

185. For the next in merit, the leſſer SILVER PALLET.

Each

Each Candidate muſt mention, on the front of the Drawing, from whence the View was taken; and the Drawings muſt be made with Chalk, Pen, Indian Ink, Water-Colours, or Biſter.

186. HISTORICAL DRAWINGS. For the beſt Hiſtorical Drawing, being an original compoſition, of five or more Human Figures; the height of the principal figure not leſs than eight inches; to be made with Crayons, Chalk, Black Lead, Pen, Indian Ink, Water-Colours, or Biſter, and to be produced on or before the third Tueſday in February, 1798; the GOLD PALLET.

187. For the next in merit, the greater SILVER PALLET.

188. SURVEYS OF COUNTIES. To the perſon who, in the year 1797, ſhall complete and publiſh an accurate Survey of any one County in England or Wales, on a ſcale of not leſs than one inch to a mile, for which rewards have not already been given by

the Society; the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES of the accuracy of the Survey, and that it was begun after the firſt of June, 1793, together with the Map, to be produced on or before the laſt Tueſday in January, 1798.

The Map to which the premium ſhall be adjudged, to remain the property of the Society.

N. B. The Society are already in poſſeſſion of Surveys of the following Counties, *viz. Bedford*, Cheſhire, Cornwall, Cumberland, Derbyſhire, Dorſetſhire, Devonſhire, Durham, Hampſhire, Herefordſhire, Hertfordſhire, Huntingdonſhire, Leiceſterſhire, Northamptonſhire, North Wales (large and ſmall), Nottinghamſhire, Oxfordſhire, Somerſetſhire, Staffordſhire, Suffolk, Surrey, Suſſex, Weſtmoreland, and Worceſterſhire.

189. The ſame premium is extended one year further.

The Survey to be begun after the firſt of June, 1794; and the Map to be produced on

on or before the laſt Tueſday in January, 1799.

191. The ſame premium is extended one year further.

The Survey to be begun after the firſt of June, 1795; and the Map to be produced on or before the laſt Tueſday in January, 1800.

192. NATURAL HISTORY. To the Author who ſhall publiſh, in the year 1797, the Natural Hiſtory of any County of England or Wales, the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the ſeveral natural productions, whether animal, vegetable, or mineral, peculiar to the County, or found therein, be carefully and ſpecifically arranged and deſcribed, in order that the Public may be enabled to judge what Arts or Manufactures are moſt likely to ſucceed in ſuch County.

The

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1798.

193. The ſame premium is extended one year further.

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1799.

194. The ſame premium is extended one year further.

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1800.

CONDITIONS.

No perſon who has gained the firſt premium in any Claſs, will be admitted a Candidate in a Claſs of an inferior age; and no Candidate ſhall receive more than one Premium in one year; nor will they who for two ſucceſſive years ſhall gain the firſt Premium in one Claſs, be ever again admitted as Candidates in that Claſs.

No perſon ſhall ever be admitted a Candidate in any Claſs, in which he has three times obtained the whole of the firſt Premium.

No Candidate ſhall ſend in more than one Performance in any one Claſs.

All the Claims which are produced each Seſſion before the Committee of Polite Arts (to which Premiums or Bounties are adjudged), are to remain with the Society till after the public diſtribution of rewards in May.

No Claim for a Premium in the Polite Arts will be admitted, that has obtained, or has been produced in order to obtain, a Premium, Reward, or Gratification, from any other Society, or any Academy or School.

All Performances that obtain Premiums in the Polite Arts, muſt be begun after the publication of ſuch Premiums.

Purpoſely to encourage real merit, and to prevent any attempts to impoſe on the Society, by producing drawings which ſhall

ſhall have been made or retouched by any other perſon than the Candidate, the Society is reſolved, upon all occaſions, with reſpect to the ſucceſsful Candidates in Claſſes 181 to 186 incluſive, to prove their abilities, by requiring a ſpecimen made under the inſpection of the Commitee of Polite Arts, in every inſtance where ſuch proof can be obtained.

It is required that all Candidates in the Polite Arts do ſignify, on their drawings, their age; and whether the performances are originals, or copies; and, if copies, whence they were taken.

Premiums for encouraging and improving Manufactures.

195. SILK. For the greateſt quantity of merchantable Silk, not leſs than ten pounds weight, produced by worms bred in England in the year 1797, the property of any one perſon; the GOLD MEDAL.

196. For the ſecond greateſt quantity, not leſs than five pounds weight, the SILVER MEDAL.

SPECIMENS of the SILK, not leſs than one pound, with CERTIFICATES that the whole is of equal quality, and produced in England, to be delivered to the Society on or before the firſt Tueſday in January, 1798.

197. MACHINE FOR CARDING SILK. For the beſt Machine, ſuperior to any now in uſe, for carding Waſte Silk equally well as by hand; to be produced, together with a ſpecimen of the Cardings,

on or before the firſt Tueſday in November, 1797; the GOLD MEDAL, or THIRTY GUINEAS.

198. CLOTH FROM HOP-STALKS OR BINES. To the perſon who ſhall produce to the Society the greateſt quantity, not leſs than thirty yards, of Cloth, at leaſt twenty-ſeven inches wide, made in Great Britain, of Hop-Stalks or Bines, and ſuperior to any hitherto manufactured in England of that material; the GOLD MEDAL, or THIRTY GUINEAS.

One pound of the Thread of which the Cloth is made, and thirty yards of the Cloth, together with proper CERTIFICATES that the whole is manufactured from Hop-Stalks or Bines, to be produced to the Society on or before the firſt Tueſday in December, 1797.

N. B. The Society are already in poſſeſſion of Cloth made in England from Hop-Stalks or Bines, which may be inſpected by application to the Regiſter.

199. WICKS FOR CANDLES OR LAMPS. To the perſon who ſhall diſcover to the Society a method of manufacturing Hop-Stalks or Bines, or any other cheap material, the growth of England or Wales, ſo as to render them fit for the purpoſe of ſupplying the place of Cotton, for Wicks of Candles or Lamps; TWENTY GUINEAS.

SAMPLES, not leſs than five pounds weight, of the Wicks, ſo prepared, to be produced to the Society, with CERTIFICATES that the whole quantity is equal in quality to the Sample, on or before the ſecond Tueſday in January, 1798.

200. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced on or before the ſecond Tueſday in January, 1799.

201. PAPER FROM RAW VEGETABLE SUBSTANCES. To the perſon

ſon in Great Britain who ſhall make the greateſt quantity, not leſs than ten reams, of the beſt and moſt uſeful Paper, from Raw Vegetable Subſtances; TWENTY GUINEAS.

CERTIFICATES of the making ſuch Paper, and one ream of the Paper, to be produced on or before the firſt Tueſday in November, 1797.

N. B. The Society are in poſſeſſion of two volumes, containing a great variety of *ſpecimens* of Paper made from Raw Vegetables, viz. Thiſtles, Potatoe-Haum, Poplar, Hop-bines, &c. which volumes may be inſpected by any perſon, on application to the Regiſter.

Premiums for Inventions in Mechanicks.

202. TRANSIT INSTRUMENT. To the perſon who ſhall invent and produce to the Society a cheap and portable Tranſit Inſtrument, which may eaſily be converted into a Zenith Sector, capable of being accurately and expeditiouſly adjuſted for the purpoſe of finding the Latitudes and Longitudes of places, and ſuperior to any portable Tranſit Inſtrument now in uſe; the GOLD MEDAL, or FORTY GUINEAS.

To be produced on or before the laſt Tueſday in January, 1798.

203. TAKING WHALES BY THE GUN-HARPOON. To the perſon who, in the year 1797, ſhall ſtrike the greateſt number of Whales, not fewer than three, with the Gun-Harpoon; TEN GUINEAS.

Proper CERTIFICATES of the ſtriking ſuch Whales, and that they were actually taken in the year 1797, ſigned by the Maſter,

or

or by the Mate when the Claim is made by the Maſter, to be produced to the Society on or before the laſt Tueſday in December, 1797.

204. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1798.

205. DRIVING BOLTS INTO SHIPS. To the perſon who ſhall invent and produce to the Society a Model, ſhewing a method of driving Bolts into Ships, particularly thoſe of Copper, without ſplitting the head or bending them, with more diſpatch, in all directions, and tighter than by any means hitherto known or in uſe; the GOLD MEDAL, or FORTY GUINEAS.

The Model, with CERTIFICATES that a Machine on the ſame conſtruction has been uſed to advantage, to be produced to the Society on or before the firſt Tueſday in February, 1798.

206. PARISH OR FAMILY MILL. To the perſon who ſhall invent and produce to the Society, the beſt-conſtructed Mill for grinding corn for the uſe of private families, or pariſh poor; the conſtruction to be ſuch as to render the working of the Mill eaſy and expeditious, and ſuperior to any hitherto in uſe; the GOLD MEDAL, or FORTY GUINEAS.

The Mill, and CERTIFICATES of its having been uſed to good effect, to be produced to the Society on or before the firſt Tueſday in February, 1798.

N. B. Cheapneſs and ſimplicity will be conſidered as eſſential parts of its merit.

207. MACHINE FOR RAISING COALS, ORE, &c. &c. To the perſon who ſhall invent a Machine for raiſing Coals, Ore, &c. from Mines, which ſhall produce the effect at a leſs expence than thoſe already known or in uſe; the GOLD MEDAL, or FIFTY GUINEAS.

A Model of the Machine, made on a ſcale of not leſs than one inch to a foot; to be produced to the Society on or before the ſecond Tueſday in February, 1798.

208. MACHINE FOR RAISING WATER. To the perſon who ſhall invent a Machine, on a better, cheaper, and more ſimple conſtruction than any hitherto known or in uſe, for raiſing Water out of Wells, &c. from a depth not leſs than fifty feet; the GOLD MEDAL, or FORTY *GUINEAS.*

CERTIFICATES of the performance of the Machine, and a Model of it, on a ſcale of not leſs than one inch to a foot, to be produced to the Society on or before the firſt Tueſday in February, 1798.

209. PREVENTING WATER FREEZING IN PIPES. To the perſon who ſhall invent and diſcover to the Society a cheap and effectual Method, ſuperior to any hitherto in uſe, for preventing the Water freezing in Pipes, ſerving to ſup-

ply

ply dwelling-houſes or other buildings; the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES of its having been tried with ſucceſs, to be delivered to the Society on or before the firſt Tueſday in March, 1798.

210. PREVENTING HORSES TURNING ABOUT IN DRAWING WATER, &c. To the perſon who ſhall invent and produce to the Society a Model, on a ſcale of not leſs than one inch to the foot, ſhewing an eaſy, ſafe, and expeditious method to obviate the neceſſity of the Horſes employed in raiſing Water out of deep Wells, drawing Ore from Mines, or Coals from Pits, turning about at the time the Water, Ore, or Coal is delivered; the GOLD MEDAL, or FORTY GUINEAS,

The Model to be produced to the Society, with CERTIFICATES of a Machine on the ſame conſtruction having been uſefully

uſefully employed, on or before the firſt Tueſday in February, 1798.

211. BORING ROCKS IN ORDER TO BLAST THEM. To the perſon who ſhall diſcover to the Society a more cheap, ſimple, and expeditious Method than any hitherto known or in uſe, of Boring Rocks in Mines, Shafts, Wells, &c. for the purpoſe of Blaſting them with Gunpowder; the GOLD MEDAL, or FORTY GUINEAS,

CERTIFICATES of the method having been practiſed with ſucceſs, with a full deſcription thereof, to be delivered to the Society on or before the firſt Tueſday in January, 1798.

212. *As the preſent method of cleanſing Chimneys is attended with great hardſhips, and ſometimes with fatal accidents to the children employed, and as the quantity of ſoot accumulated in Chimneys is frequently the occaſion of Fires, the Society propoſe to give the following Premium.*

CLEANS-

CLEANSING CHIMNEYS. To the perſon who ſhall invent and produce to the Society, the moſt ſimple, cheap, and proper Apparatus, ſuperior to any hitherto known or in uſe, for cleanſing Chimneys from Soot, and obviating the neceſſity of children being employed within the flues, in the manner now practiſed; the GOLD MEDAL, or FORTY GUINEAS.

The Apparatus, with CERTIFICATES of its having been uſed with proper effect, to be produced to the Society on or before the third Tueſday in February, 1798.

213. PREVENTING PASSENGERS IN CARRIAGES BEING INJURED WHEN THE HORSES HAVE TAKEN FRIGHT. To the perſon who ſhall invent and diſcover to the Society the beſt and moſt effectual method of preventing Paſſengers in Carriages being injured when the Horſes have taken fright; the GOLD MEDAL, or THIRTY GUINEAS.

CERTI-

CERTIFICATES that the Invention has been uſefully applied to at leaſt one Carriage, and may be advantageouſly applied to others, to be produced to the Society on or before the ſecond Tueſday in February, 1798.

214. GUNPOWDER MILLS. To the perſon who, in the year 1797, ſhall invent and bring to perfection the moſt effectual method of ſo conducting the works of Gunpowder Mills, in the buſineſs of making Gunpowder, as to prevent the poſſibility of their being blown up and deſtroyed by exploſion; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

CERTIFICATES and ACCOUNTS of the method having been put in practice in one or more Gunpowder Mills in this kingdom, and that it promiſes, in the opinion of the beſt judges concerned in ſuch works, to anſwer the purpoſe intended, to be produced to the Society on or before the firſt Tueſday in February, 1798.

215.

215. The ſame premium is extended one year further.

CERTIFICATES and ACCOUNTS to be produced to the Society on or before the firſt Tueſday in February, 1799.

N. B. As an encouragement to perſons to turn their thoughts to improvements of this nature, if any ſhould be made on the preſent method of conducting the buſineſs of Gunpowder-making, which fall ſhort of the total prevention of exploſion, and they are ſent to the Society, for the ſake of humanity, the papers ſo ſent in will receive due conſideration, and ſuch Bounty or Reward will be beſtowed thereon as they appear to merit.

Pre-

Premiums offered for the advantage of the Britiſh Colonies.

216. NUTMEGS. For the greateſt quantity of merchantable Nutmegs, not leſs than ten pounds weight, being the growth of his Majeſty's dominions in the Weſt Indies, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, and equal to thoſe imported from the Iſlands of the Eaſt Indies; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

Satisfactory CERTIFICATES, from the Governor, or Commander in Chief, of the place of growth, with an account of the number of trees, their age, nearly the quantity of fruit on each tree, and the manner of culture, to be produced on or before the firſt Tueſday in December, 1797.

217. The ſame premium is extended one year further.

CERTI-

CERTIFICATES to be produced on or before the ſecond Tueſday in December, 1798.

218. CINNAMON. For importing into the port of London, in the year 1797, the greateſt quantity, not leſs than twenty pounds weight, of Cinnamon, being the growth of ſome of the Iſlands in the Weſt-Indies, belonging to the Crown of Great-Britain, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, and equal in goodneſs to the Cinnamon brought from the Eaſt-Indies; the GOLD MEDAL, or FIFTY GUINEAS.

SAMPLES, not leſs than two pounds weight, with CERTIFICATES that the whole quantity is equal in goodneſs; together with ſatisfactory CERTIFICATES, ſigned by the Governor, or Commander in Chief, of the place of growth, with an account of the number of trees growing on the ſpot, their age, and the manner of culture; to be produced to the Society, on

or

or before the firſt Tueſday in January, 1798.

219. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

220. CLOVES. For importing into the port of London, in the year 1797, the greateſt quantity of Cloves, not leſs than twenty pounds weight, being of the growth of ſome of the Iſlands of the Weſt-Indies, ſubject to the Crown of Great-Britain, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, and equal in goodneſs to the Cloves brought from the Eaſt-Indies; the GOLD MEDAL, or FIFTY GUINEAS.

SAMPLES, not leſs than two pounds weight, with CERTIFICATES that the whole quantity is equal in goodneſs, together with ſatisfactory CERTIFICATES,

ſigned by the Governor, or Commander in Chief of the place of growth, with an account of the number of trees growing on the ſpot, their age, and the manner of culture, to be produced to the Society on or before the firſt Tueſday in January, 1798.

221. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

222. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1800.

223. PLANTATIONS OF BREAD-FRUIT TREES. To the perſon who ſhall have raiſed in any of the Iſlands of the Weſt-Indies ſubject to the Crown of Great Britain, or in any of the Britiſh Settlements

on

the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, between the firſt of January, 1796, and the firſt of January, 1797, the greateſt number of Bread-fruit Trees, not fewer than one hundred, and properly fenced and ſecured the ſame, in order to ſupply the Fruit to the Inhabitants, the GOLD MEDAL, or THIRTY GUINEAS.

Proper ACCOUNTS and CERTIFICATES, ſigned by the Governor or Commander in Chief, of the methods made uſe of in cultivating the Plants and ſecuring the Plantation, and that the Trees are in a growing and thriving ſtate at the time of ſigning ſuch Certificates, to be produced to the Society, with Samples of the Fruit, on or before the firſt Tueſday in January, 1798.

224. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

225. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1800.

226. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1801.

227. KALI FOR BARILLA. To the perſon who ſhall have cultivated, in the Bahama Iſlands, or any other part of his Majeſty's dominions in the Weſt Indies, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, in the year 1794, the greateſt quantity of land, not leſs than two acres, with Spaniſh Kali, fit for the purpoſe of making Barilla, the GOLD MEDAL, or THIRTY GUINEAS.

228.

228. For the next greateſt quantity, not leſs than one acre, the SILVER MEDAL, or FIFTEEN GUINEAS.

CERTIFICATES, ſigned by the Governor, or Commander in Chief for the time being, of the quantity of land ſo cultivated, and of the ſtate of the Plants at the time of ſigning ſuch Certificates, to be delivered to the Society, with Samples of the Kali, on or before the ſecond Tueſday in November, 1797.

229, 230. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1798.

231, 232. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1799.

233. DESTROYING THE INSECT COMMONLY CALLED THE BORER. To the perſon who ſhall diſcover to the Society an effectual method of deſtroying the Inſect commonly called the BORER, which has of late years been ſo deſtructive to the Sugar-Canes in the Weſt-India Iſlands, or in any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, the GOLD MEDAL, or FIFTY GUINEAS.

The Diſcovery to be aſcertained by ſatisfactory CERTIFICATES, under the hand and ſeal of the Governor or Commander in Chief for the time being, and of ſome other reſpectable perſons, inhabitants of the Iſlands, or other place, in which the remedy has been ſucceſsfully applied; ſuch CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in January, 1798.

234. The ſame premium is extended one year further.

CERTI-

CERTIFICATES to be delivered on or before the firſt Tueſday in January, 1799.

235. BOTANIC GARDEN IN THE BAHAMA ISLANDS. To the perſon who, before the firſt of January, 1796, ſhall have ſet apart, and at his own private expence ſhall have properly fenced and cultivated, the greateſt quantity of ground, not leſs than five acres, in any of the Bahama Iſlands, as a Botanic Garden, for the purpoſe of making experiments in the culture of thoſe articles which are the peculiar production of the tropical climates, and which may tend to promote the commerce and manufactures of this country; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

It is required that any perſon claiming the foregoing premium, ſhould produce to the Society, on or before the firſt Tueſday in January, 1798, a CERTIFICATE from the Governor or Commander in Chief of the Bahama Iſlands for the time being, of his having complied with the above requi-

ſitions, and that the Garden is in a proper ſtate of culture at the time of ſigning ſuch Certificate.

236. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

237. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1800.

238. BHAUGULPORE COTTON. To the perſon who ſhall import into the port of London, in the year 1798, the greateſt quantity, not leſs than one ton, of the Bhaugulpore Cotton, from which clothes are made in imitation of nankeen, without dying; the GOLD MEDAL.

A quantity of the Cotton, not leſs than five pounds weight in the pod, and five pounds

pounds carded, to be produced to the Society, with proper CERTIFICATES, ſigned by the Secretary to the Board of Trade of Bengal, on or before the laſt Tueſday in February, 1799.

239. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced to the Society on or before the laſt Tueſday in February, 1800.

240. ANNATTO. To the perſon who, in the year 1798, ſhall import into the port of London, from any part of the Britiſh Settlements in the Eaſt Indies, the greateſt quantity of Annatto, not leſs than five hundred weight; the GOLD MEDAL.

A quantity of the Annatto, not leſs than ten pounds weight, to be produced to the Society, with proper CERTIFICATES, ſigned by the Secretary of the Board of Trade of the reſpective Settlement, that the Annatto is the produce of ſuch Settlement, on or before the laſt Tueſday in February, 1799.

241.

241. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced to the Society on or before the laſt Tueſday in February, 1800.

242. TRUE COCHINEAL. To the perſon who in the year 1798 ſhall import into the port of London, from any part of the Britiſh Settlements in the Eaſt Indies. the greateſt quantity of True Cochineal, not leſs than five hundred weight, the GOLD MEDAL.

A quantity of the Cochineal, not leſs than ten pounds weight, with proper CERTIFICATES, ſigned by the Secretary of the Board of Trade of the reſpective Settlement, that the Cochineal is the produce of ſuch Settlement, to be produced to the Society on or before the laſt Tueſday in February, 1799.

243. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced on or before the laſt Tueſday in February, 1800.

Society's Office, Adelphi, June 1, 1797.

Ordered,

THAT THE SEVERAL CANDIDATES AND CLAIMANTS TO WHOM THE SOCIETY SHALL ADJUDGE PREMIUMS OR BOUNTIES, DO ATTEND AT THE SOCIETY'S OFFICE IN THE ADELPHI, ON THE LAST TUESDAY IN MAY, 1798, AT TWELVE O'CLOCK AT NOON, TO RECEIVE THE SAME; THAT DAY BEING APPOINTED BY THE SOCIETY FOR THE DISTRIBUTION OF THEIR REWARDS: AND BEFORE THAT TIME NO PREMIUM OR BOUNTY WILL BE DELIVERED, EXCEPTING TO THOSE WHO ARE OUT OF THE KINGDOM, OR PREVENTED BY UNAVOIDABLE ACCIDENTS.

IN CASES WHERE THE SOCIETY MAY THINK FIT TO ADMIT EXCUSES FOR NOT ATTENDING IN PERSON, DEPUTIES MAY BE SUBSTITUTED TO RECEIVE THE REWARDS, PROVIDED SUCH DEPUTIES ARE EITHER MEMBERS OF THE SOCIETY, OR THE SUPERIOR OFFICERS THEREOF.

GENERAL

GENERAL CONDITIONS.

NOTWITHSTANDING the Society reſerve to themſelves the power of giving, in all caſes, ſuch part only of any Premium as the Performance ſhall be adjudged to deſerve, or of withholding the whole, if there be no merit; yet the Candidates may be aſſured the Society will always judge liberally of their ſeveral claims.

It is required that the matters for which Premiums are offered, be delivered in without names, or any intimation to whom they belong; that each particular thing be marked in what manner each Claimant thinks fit, ſuch Claimant ſending with it a paper ſealed up, having on the outſide a correſponding mark, and on the inſide the Claimant's name and addreſs: and all Candidates are to take notice, that no claim for a Premium will be attended to, unleſs the conditions of the Advertiſement are fully complied with.

No Papers ſhall be opened, but ſuch as ſhall gain Premiums, unleſs where it appears

to the Society abſolutely neceſſary for the determination of the Claim; all the reſt ſhall be returned unopened, with the Matters to which they belong, if enquired after by the Mark, within two years; after which time, if not demanded, they ſhall be publicly burnt, unopened, at ſome meeting of the Society.

All Models of Machines, which obtain Premiums or Bounties, ſhall be the property of the Society.

All the Premiums of this Society are deſigned for Great Britain, unleſs expreſsly mentioned to the contrary.

The Claims ſhall be determined as ſoon as poſſible after the delivery of the ſpecimens.

No perſon ſhall receive any Premium, Bounty, or Encouragement, from the Society, for any matter for which he has obtained, or propoſes to obtain, a patent.

A Candidate for a Premium, or a perſon applying for a bounty, being detected in any diſingenuous method to impoſe on the Society, ſhall forfeit ſuch Premium or Bounty,

Bounty, and be deemed incapable of obtaining any for the future.

The Performances which each year obtain Premiums or Bounties, are to remain with the Society until after the public diſtribution of Rewards.

No member of this Society ſhall be a Candidate for, or entitled to receive, any Premium, Bounty, or Reward whatſoever, except the Honorary Medal of the Society.

Where Certificates are required to be produced in claim of Premiums, they ſhould be expreſſed, as nearly as poſſible, in the words of the reſpective advertiſements, and ſhould not be from the Candidate (ſolely), but from ſome other perſon or perſons who have a poſitive knowledge of the facts certified.

Where Premiums or Bounties are obtained in conſequence of ſpecimens produced, the Society mean to retain ſuch part of thoſe ſpecimens as they may judge neceſſary, making a reaſonable allowance for the ſame.

No

No candidates ſhall be preſent at any meetings of the Society or Committees, or admitted at the Society's Rooms, after they have delivered in their Claims, until ſuch Claims are adjudged, unleſs ſummoned by the Committee.

N. B. Any information or advice that may forward the deſigns of this Society for the public good, will be received thankfully, and duly conſidered, if communicated by letter, addreſſed to the Society, and directed to Mr. MORE, the Secretary, at the Society's Office, in the Adelphi Buildings, London.

*** In caſe any perſon ſhould be inclined to leave a ſum of money to this Society, by will, the following form is offered for that purpoſe:

Item. I give and bequeath unto A. B. and C. D. the ſum of upon condition and to the intent that they, or one of them, do pay the ſame to the Collector for the time being, of a Society in London, who now call themſelves the Society for the Encouragement of Arts, Manufactures, and Commerce; which ſaid ſum of I will and deſire may be paid out of my perſonal eſtate, and applied towards the carrying on the laudable deſigns of the Society.

By order of the Society,

SAMUEL MORE, Secretary.

PAPERS

IN

AGRICULTURE.

AGRICULTURE.

THE GOLD MEDAL, being the firſt Premium offered for ſowing or ſetting ACORNS, in order to raiſe Timber, was this ſeſſion adjudged to JOHN CHRISTIAN CURWEN, Eſq. from whom the following Papers were received,

SIR,

PERMIT me to take the liberty of requeſting you to preſent a Certificate of my Acorn-planting, which it would flatter me highly to find deſerving of any mark of approbation from the Society for the Encouragement of Arts, Manufactures, and Commerce. By the advice of my much-reſpected friend the Biſhop of Landaff, I became the purchaſer of two hundred and thirty acres of mountain ground bordering on the Lake of Windermere; and, in compliance with his

advice, have now completed the planting of two hundred acres, or thereabouts, with Acorns. I began with it in April, 1795: the ſeverity of the ſeaſon, and the lateneſs of planting, made them not generally ſucceed; thoſe that came up left no doubt as to the ſucceſs. I have this year completed the whole, and renewed what failed among thoſe that were done before: I am not able to aſcertain with preciſion the quantity of Acorns uſed, but believe ſomething near five hundred buſhels. This being the firſt experiment of the kind here, I wiſhed to ſpare nothing to ſecure the ſucceſs, and in very many places they are much too thick. Under every diſadvantage, and bringing the Acorns from South Wales, it will not coſt twenty ſhillings per acre.

The Acorns of laſt year ſhot, upon an average, eight inches; thoſe of this ſeaſon promiſe to exceed a good deal: the former have already made from one to two inches of wood, and have ſtood the winter with very little loſs. From the nature of the ground, I have no graſs to contend with, but

but am much tormented with fern: where I can, I cut it; but even where it is ſuffered to grow, the Oak promiſes to get forward. I truſt the ſucceſs of this trial will induce many gentlemen to follow the example. I have planted above fifty thouſand Oaks amongſt the Acorns, for the ſake of the experiment. Mr. Dixon of Hovich, and Mr. Thompſon of Beadle, who have viewed the planting, and are the firſt nurſerymen in this country, entertain little doubt but this method will, independent of the ſaving of expence, be found the moſt eligible method of raiſing Oaks. Some few Acorns I ſowed, but do not find they anſwer like thoſe dibbled.

I am, with reſpect,

SIR,

Your moſt humble Servant,

J. C. CURWEN.

Belle Iſle,
near Hawkshead, Lancaſhire.
Auguſt 8, 1796.

Mr. MORE.

I HEREBY certify that between the firſt of October, 1795, and the firſt of May, 1796, I have planted, on a piece of ground belonging to John Chriſtian Curwen, Eſq. ſituated in the pariſh of Hawkshead, on the borders of the Lake of Windermere, and completely fenced with a ſtone wall of upwards of ſix feet, one hundred and eighty acres, or thereabouts, with Acorns; that the whole is in the moſt promiſing ſtate, and leaves little doubt of the complete ſucceſs of this method of raiſing Oaks.

THOMAS HODGSON,
Bailiff to J. C. Curwen, Eſq.

I believe the above Certificate to be true,
REG. BRATHWAITE,
Miniſter of Hawkshead.

The

The SILVER MEDAL, being the ſecond Premium for ſowing or ſetting ACORNS, in order to raiſe Timber, was this ſeſſion adjudged to SAMUEL KILDERBEE, of Ipſwich, Eſq. from whom the following Accounts, and alſo the Obſervations on tranſplanting OAKS, as hereafter inſerted, were received.

SIR,

THE incloſed is a Certificate of the Plantations I made in the autumn of the laſt year. The method purſued was nearly ſimilar to that which, in a former letter, I gave you an account of (ſee Vol. XIII, page 119).

It is my intention, ſhould I have leiſure, to trouble you with a few obſervations upon the tranſplanting of Oaks, in order to remove in ſome degree the objections which I once made againſt the practice, from an

apprehenſion that the tap roots received injury by it.

I am, SIR,

Your obedient ſervant,

SAMUEL KILDERBEE.

Ipſwich, Oct. 18, 1796.

MR. MORE.

JOHN Sutton, of Badingham, in the county of Suffolk, farmer; John Criſp, of Great Glenham, in the ſaid county, farmer; Robert Berrett, of the ſame place, farmer; John Denny, of Cransford, in the ſaid county, farmer; and Joſeph Smith, of the ſame place, farmer; do hereby, ſeverally and reſpectively, certify and declare to the Society for the Encouragement of Arts, Manufactures, and Commerce, in manner following:—

John Sutton certifieth, that he is the occupier of a meſſuage and farm, in Badingham aforeſaid, called Colſton Hall; that it belongeth to Samuel Kilderbee, of Ipſwich, Eſq. and that Mr. Kilderbee cauſed to be planted with Acorns, between

October, 1795, and January, 1796, nine acres, two roods, and thirty perches of a certain Field, called Went Hill, part of the ſaid farm.

And John Criſp certifieth, that he is the occupier of a meſſuage and farm, in Great Glenham aforeſaid, called Hawker's Tenement, belonging to Samuel Kilderbee, Eſq. who cauſed to be planted with Acorns, between the times before mentioned, five acres of a certain field, called Dry Hill, part of the ſaid farm.

And John Criſp further ſaith, that the ſaid Samuel Kilderbee, Eſq. cauſed to be planted with Acorns, between the times before mentioned, three roods and twenty-two perches of a certain ſtrip of land belonging to him in Great Glenham aforeſaid, and in Parham, in the ſaid county, called Queen Mary's Lane.

And Robert Berrett certifieth, that he is the occupier of a meſſuage and farm, in Great Glenham aforeſaid, called Great Glenham Hall, belonging to Samuel Kilderbee, Eſq. who cauſed to be planted with Acorns, between the times before mentioned,

tioned, two acres of land, called Slugs Acre, parcel of the ſaid meſſuage and farm.

And John Sutton, John Criſp, and Robert Berrett, do hereby further certify, that, before the ſaid pieces of land were planted with Acorns, the ſame were ſecurely ſeparated and fenced in from the adjoining lands, and were, by Mr. Kilderbee, ſet apart for the growth of timber and underwood; that, before the lands were planted with Acorns, the ſame were made fit for the reception of, and ſown with wheat; and that, after the wheat was ſown, the Acorns were carefully dibbled in, and the holes cloſed.

And John Denny and Joſeph Smith certify, that they dibbled and ſet, or cauſed the ſeveral pieces of land before mentioned to be dibbled and ſet, with Acorns, between the times before mentioned, and that not leſs than two buſhels and a quarter of Acorns were ſet on each acre.

And John Sutton, and John Criſp, do further declare, that, although it is impoſſible to compute with accuracy the number of plants on each acre of land planted, becauſe

becauſe of the ſtubble thereon, yet, as concerning the plantations aforeſaid, upon the farms in their reſpective occupations, they reſpectively certify, there appears to them to be many more than three hundred, and that the plants are in a healthy and thriving condition.

And Robert Berrett himſelf declares, although he cannot certify, that there are actually three hundred plants on each acre of the ſaid piece of land, called Slugs Acre, becauſe of the ſtubble and graſs thereon, and that the plants are ſmall; yet, from the quantity of Acorns ſet, and the plants which have made their appearance, he has reaſon to ſuppoſe there are many more than that number.

Witneſs our hands, this 26th of September, 1796,

JOHN SUTTON,
JOHN CRISP,
ROBERT BERRETT,
JOHN DENNY,
JOSEPH SMITH.

Witneſs to the above ſignatures,

WM. BROWNE, Rector of Dallinghoe, in the county of Suffolk.

SIR,

I SOME time ſince ſent you a certificate of the plantations I made in the autumn of laſt year, wherein I adopted ſimilar ſteps to thoſe mentioned in a former letter to you, upon the ſubject of planting. In that letter I recollect to have obſerved, that I thought young plants of Oaks having a tap root, would flouriſh to a greater degree in places were the Acorns firſt vegetated, than if tranſplanted, becauſe of the injury which the tap roots might receive upon removal.

The tap root of an Oak plant, of five or ſix years old, is found to ſhoot downwards like a carrot; but I am inclined to think that after a few years it ceaſes to go on in that direction, and either dies or ſhoots horizontally.

In the autumn of the year 1795 ſome hundred Oak trees were blown down, from the ſize of ten, fifteen, and twenty feet, in a tree, to one, two, and three loads and upwards; and, upon a cloſe examination, not

one

one was found with an appearance of a tap root, ſuch as the Oak is commonly ſuppoſed to have. Some of thoſe trees ſtood in open fields, and ſome in woods, upon various ſoils, upon clay, loam, ſand, and ſome on marſh grounds: moſt of the trees were healthy, and many of them had large ſpreading tops. If then it ſhould be true that the tap root of an Oak, after a few years, ceaſes to continue in a direct deſcending line, (and which, from reaſon and late obſervations, againſt the common opinion, I think it is) the force of the objection againſt tranſplanting may be thought to be greatly leſſened.

I am, SIR,

Your obedient humble Servant,

SAMUEL KILDERBEE,

Ipſwich, Nov. 14, 1796.

Mr. MORE.

The

The GOLD MEDAL, being the firſt Premium offered for planting the greateſt quantity of Land with ASH, was this ſeſſion adjudged to LEWIS MAJENDIE, of Caſtle Hedingham, Eſſex, Eſq. whoſe Papers on this ſubject are inſerted as follows.

SIR,

I BEG leave to trouble you to ſubmit the encloſed Certificates to the Society for the Encouragement of Arts, Manufactures, and Commerce.

The ſucceſs which has attended my plantations of Aſh, ſome of which have been thought worthy the notice of the Society, has induced me to extend them; and the following will contain a ſhort account of the method of managing a field of ſeven acres and nine poles, planted by my direction, with nineteen thouſand Aſh Trees in the months of January and February, 1793.

The

The ſoil, which is partly clay, and partly gravel, was previouſly trenched to a depth of from fifteen to eighteen inches; and the trees, which were four years old, ſtrait, and well rooted, were planted in rows about four feet apart, in the quincunx order.

During the ſummers of 1793 and 1794 the plantation was kept clean by hand-hoeing; and in March 1795, ſuch trees as appeared likely to become timber, were ſelected, and left at ſuitable diſtances, in number exceeding one hundred to each acre, for that purpoſe, the reſt being cut down for underwood.

I continued to hoe the ground, during the ſucceeding ſummers of 1795 and 1796; but the growth and luxuriance of the trees is now ſuch as to render this attention no longer neceſſary. I have alſo to add, that the plantation is ſecurely fenced.

The Society, by referring to a former account of my plantations of Aſh (ſee Vol. XII. p. 148), will obſerve a cloſe ſimilarity in the management of that now under

conſideration; experience indeed has not ſhewn me a better method. I may, perhaps, congratulate myſelf for having, in the preſent inſtance, completely trenched my ſoil previous to planting: the health and vigour of the trees, ſufficiently convince me of the benefits I have derived on this occaſion; and I cannot conclude without impreſſing the Society with the value of this preliminary ſtep in all plantations whatever.

I am, SIR,

Your moſt obedient humble ſervant,

LEWIS MAJENDIE.

Hedingham Caſtle, Eſſex,
Dec. 13, 1796.

MR. MORE,

THIS is to certify, that in the months of January and February, 1793, I, with proper aſſiſtants, planted, in the pariſh of Caſtle Hedingham, for Lewis Majendie, Eſq. ſeven acres and nine poles, with nineteen thouſand Aſh-trees, for the purpoſe of

of raiſing timber and underwood. The field was previouſly double-dug or trenched; and the trees, which were four years old, were planted in rows at intervals of four feet.

In February, 1795, thoſe trees which appeared moſt promiſing for timber, were left at ſuitable diſtances throughout the plantation, and in number exceeding one hundred to each acre, the reſt being cut down for underwood.

The whole is ſecurely fenced, and at this time, near four years ſince the plantation was made, the trees are in a moſt healthy ſtate.

JAMES MONTGOMERIE,
Gardener to Lewis Majendie, Eſq.

Hedingham Caſtle,
Dec. 1, 1796.

I JOHN Storer, of the pariſh of Halſted, in the county of Eſſex, land ſurveyor, hereby certify, that I meaſured a field in the pariſh of Caſtle Hedingham, called the Hither Wood Piece, planted with Aſh, for

timber and underwood, by order of Lewis Majendie, Eſq. and that it contains ſeven acres and nine poles.

JOHN STORER.

Halſted, Dec. 1, 1796.

WE the Miniſter and Churchwarden of the pariſh of Caſtle Hedingham, in the county of Eſſex, do hereby certify, that we have viewed the plantation of Aſh alluded to in the above Certificates, and that we believe the facts contained in them to be ſtrictly true.

GEORGE CASWALL, Curate.
BARKER MYALL, Churchwarden.

Dec. 1, 1796.

The

The GOLD MEDAL, being the firſt Premium offered for planting OSIERS, was this ſeſſion adjudged to the Right Honourable Lord BROWNLOW; of which Plantation the following Account and Certificate were received.

SIR,

MR. Samuel Edwards, of Stamford, agent for the eſtates of Lord Brownlow, near Stilton, in the county of Huntingdon, having informed us of his intention to apply, on behalf of his Lordſhip, to the Society for the Encouragement of Arts, Manufactures, and Commerce, for the Premium offered by that Society to perſons planting Oſiers on their eſtates; and having deſired us to ſtate and certify the truth of certain facts relating to the Oſiers planted on Lord Brownlow's ſaid eſtate; we have, therefore, in conſequence of ſuch applica-

tion, troubled you with the following ſtatement.

Lord Brownlow is the proprietor of an eſtate in Farcett Fen, near Stilton, called the Conqueſt Lands, from which the moor or turf has lately been dug or taken, in order to prepare the ground for planting of Oſiers; and about twenty-two acres of the ſaid land, as near as we can judge, have been planted with Oſiers in the winter of 1795, and the ſpring of 1796, and are now in a very thriving ſtate. The ſorts or kinds of Oſiers planted, are the common Oſier, the new kind, and ſome other ſorts; and about twelve thouſand were planted on an acre; as we were alſo informed by Mr. William Todd, of Farcett, the reſident agent of the ſaid eſtate, and as appeared to us upon a view of the premiſes, and on inſpection of the books, ſurvey, and papers of the ſaid William Todd, produced by him to us on this occaſion. We alſo beg leave to certify, that on examining the length or ſize of ſeveral of the ſhoots, we found many of them upwards of eight feet in length, and

and proportionably thick, and the plants in general thriving, and healthy in appearance, and are now fit for the uſe of baſket-makers.

We are, SIR,

Your moſt obedient ſervants,

THOMAS BIRD, Churchwarden.
THOMAS TOON, } Overſeers of
ISAAC PINDARD, } the Poor.

Farcett, Nov. 10, 1796.

Mr. MORE.

I WILLIAM Todd, of Farcett, the reſident agent of the eſtates of Lord Brownlow, near Stilton, do hereby declare, that the foregoing ſtatement or certificate under the hands of the above-named Thomas Bird, Churchwarden, and Thomas Toon, and Iſaac Pindard, Overſeers of the Poor, is true; the whole buſineſs relating to preparing the ground, cutting out, and procuring the Oſier Setts, and planting the ſame, having been under my management,

ſubject to the direction of Mr. Samuel Edwards, of Stamford, the principal agent of the ſaid eſtate.

I am, SIR,

Your moſt humble ſervant,

W. TODD.

Farceti, Nov. 10, 1796.

Mr. MORE.

The

The Thanks of the Society were given to the Right Honourable the Earl of FIFE, for the following Account of the ſtate of his Plantation in North Britain, for which his Lordſhip received the GOLD MEDAL of the Society, in the year 1788 (ſee Vol. VI, p. 3, of theſe Tranſactions). And here it may be proper to obſerve, that it will be highly ſatisfactory to the Society to be occaſionally informed of the condition of all thoſe Plantations, for which any Rewards are, or have been beſtowed by them,

SIR,

IN order to ſhew the neceſſity of nurſing hard wood in a Fir Plantation, there is a very large Plantation belonging to me in Banffſhire, called Rothemay; two thirds of it were planted only with Scotch Firs; they had not been thinned regularly when young;

they were about fifty years old, and, by cutting and letting in cattle, and the effects of wind, had not left a Fir Tree on the ground; about a third of the Plantation was mixed with Beech, Oak, Aſh, Elm, and Birch; they are all now in great vigour; and I have replanted all the waſte parts (which was begun in October, 1795, and finiſhed in March, 1796) with Oaks, Aſh, Larches, Beech, Elm, Mountain Aſh, Poplar, and a few Silver Firs, but no common Firs: theſe are all thriving and in great vigour. Beſides making many acres of new plantations every year, my chief employment has been to trench and plant a great variety of trees, which are mixed in thoſe different Plantations in the moors that were mentioned in my former papers. I continue to trench five or ſix acres every year, in different places, and examine thoſe parts of the Plantation where the trees are in the worſt ſtate, either from gravel or ſtagnated water; many trees, when planted in gravelly ſoil, have not vigour to get through the gravel to better ground, which generally lies under it, and,

if

if ſandy, is often mixed with clay; and when the ground is trenched, trees no where thrive better. In the trenched places I plant at firſt many trees, and let them ſtand two or three years, then I tranſplant them, leaving the trees at about twenty feet diſtance from each other; the whole expence then is hoeing them twice a year for two or three years; if they afterwards appear too thick, they may be thinned by cutting down ſome of them, as nothing can be worſe than thinning them by over-pruning: I find Oaks, Cheſnuts, Larch, and Beech, thriving in great vigour by this manner of planting. I alſo, in the interſperſed places, thin the common Firs, which ſhould be properly attended to, for in general they are planted too thick; the leaves that fall from them do not act like thoſe from other trees, for they kill even the graſs, and no tree can thrive when under the ſhade of a Fir: the great miſtake is pruning, inſtead of cutting them down, for pruning renders them of no value, as their growth depends on their limbs. In the old natural woods of Fir, a fine large tree is

frequently ſeen, when it has had room for its growth; as a proof of this, in my Fir Woods in the Foreſt of Marr, Aberdeenſhire, which are all natural, there are trees that meaſure eighteen feet, the branches of them have never been touched with a pruning knife.

The Larch Trees will certainly be found valuable for the navy, they quickly grow to a great ſize. The Empreſs of Ruſſia, I am informed, was ſo perſuaded of their utility, that ſhe ſecured them for the public ſervice when ſhe made grants of foreſt lands.

You have annexed a liſt of Trees planted in Banffſhire and Aberdeenſhire, ſigned by the planter at Duff-Houſe, and by James Duncan, my ſteward, in the county of Moray.

I am, SIR,

Your humble ſervant,

FIFE.

Fife-Houſe, April 1797.

To MR. MORE.

Report to the Earl of FIFE, *of Trees planted at* ROTHEMAY, *&c. by* JOHN GEDDES, *his Lordſhip's Planter.*

	Anno 1795.	Anno 1796.
Mannoch Hill	4,000 Aſh	5,000 Scotch Fir
	4,000 Larch	1,800 Larch
	3,000 Oaks	600 Mountain Aſh
	3,000 Beech	600 Beech
	3,000 Alder	600 Birch
	2,900 Service	100 Oaks
	100 Silver Fir	
Total	20,000	Total 8,700

Hill of Inchorfie, Anno 1796.	
4,000	Aſh
3,000	Beech
1,500	Oak
1,100	Larch
800	Mountain Aſh
300	Silver Fir
300	Cheſnut
Total 11,000	

Hill oppoſite Mayen, Anno 1795.	
1,000	Larch
1,000	Beech
600	Spruce Fir
850	Mountain Aſh
500	Birch
500	Oaks
3,000	Scotch Fir
Total 7,450	

Burnſide and Avenue.	
100	Elms
100	Aſh
6	Ld. Fife's Mount. Aſh
2	American Birch
1	Variegated Plane
6	Carolina Poplars
1	Weeping Aſh
8	Virginia Medlars
2	Double-flowering Aſh
Total 226	

Mannoch Hill, Anno 1795 as above		20,000
	1796	8,700
Hill of Inchorfie	1796	11,000
Hill oppoſite to Mayen	1795	7,450
Burnſide and Avenue		226
	Total	47,376

This is beſides flowering ſhrubs and tranſplanted trees, of which there was a vaſt number about the houſe, water-ſide, and through all the old woods.

The old woods are all properly thinned for relieving the hard wood, and in every place in the moſt thriving ſtate; there is alſo a large road made through the Hill of Inchorſie with different communications; the road is about a mile long, and this plantation conſiſts of one hundred acres.

Duff-Houſe Plantations.

The thinning of all the plantations about Duff-Houſe has been carried on this ſeaſon as uſual, and many additional clumps made by cutting out the Firs, trenching the ground, and planting the ſame with hard wood, from three to four feet high; many trees from theſe kind of clumps made in former years, tranſplanted to different parts of the plantations, and the whole properly filled up. In the courſe of this year's operations, there is ſcarce a tree but has ſucceeded, and in many ſituations where, when the ground was firſt incloſed, there was nothing but heath, and very little ſoil; the wood is now in a very thriving ſtate, and, throughout

throughout the whole of theſe extenſive plantations, no tree makes greater progreſs than the Oak.

JOHN GEDDES.

State of Larch and Hard Wood tranſplanted and planted in Lord FIFE'S *Moray Eſtate in* 1796.

Tranſplanted from Belts at Innes, (nearly equal numbers) Aſh, Elm, Beech, Oaks, about		200
Bought by the ſubſcriber, picked from the lines of nurſeries about Elgin	Larch	800
	Aſh	150
	Elms	150
	Oaks	200
	Birch	150
		1,650

Brought forward,	1,650
Rhoan	300
Planes	50
Beech	50
	2,050

JAMES DUNCAN,
Factor for Lord Fife.

FIFE.

Morris Town, near Elgin,
February 3, 1797.

It being the wiſh of THOMAS SKIP DYOT BUCKNALL, Eſq. that the ſyſtem of ORCHARDING ſhould be forwarded as much as is in his power to do, communicated to the Society the following letter, which is inſerted in order that the Public may be convinced the ſyſtem recommended by him is in the courſe of a full and fair trial, by his ſuperintending Mr. Fairman's Orchards, extending over ſixty acres of Land, (ſee Vol. XIV, p. 233).

SIR,

TO forward the laudable intentions of the Society for the improvement of Orchards, I laſt Auguſt meaſured off four acres and an half of fine loamy land, at Bapchild, which is now planted with Apple-trees, by way of an experimental Orchard; and have alſo undertaken to ſuperintend the plantations of William Fairman, Eſq. whoſe trees are fine, ſtand upon a good ſoil, are happily

happily ſituated with regard to ſhelter; and from the great extent, various ſorts of fruit, and different ages of the trees, hope I ſhall be able to do credit to myſelf, and eſtabliſh the ſyſtem beyond all controverſy: as the work goes on, I ſhall do myſelf the pleaſure of ſending any additional information to you for the conſideration of the Society.

I have ſeveral times conſulted Mr. Fairman upon the ſubject, and, in the laſt letter I received from him, he uſes theſe words: "My time is ſo much taken up by "more conſequential objects, that it will "not admit of my looking to my own trees, "though I entirely approve of your ſyſtem, "from the effects it has produced in Mr. "Boulding's Orchards. But you know, by "ſuffering an unſkilful perſon to attempt "the pruning, more miſchief than advan-"tage may follow. I could not expect, "when I had the pleaſure of ſeeing you at "Mr. Lake's, that you would be able to "ſpare any time to attend my trees, as the "Parliament was then ſitting; therefore I "ſhall look forward to the next autumn;

" and, if you pleaſe, we will then ſet to work " with energy."

It appears, in the XIVth Volume of theſe Tranſactions, that I recommended alternate pruning. I ſhall now deſcribe how the trees ſhould be left, viz.

Firſt year, prune and clean every third tree, and no more.

Second year, take half the remaining trees alternately.

Third year, go over the firſt year's pruning, and do no more.

I am then perſuaded the ſuperior excellence of the pruned trees will be ſo conſpicuous, as to carry full conviction; the expence will be about fourpence-halfpenny per tree, large and ſmall.

I am, SIR,

Your moſt obedient ſervant,

THOMAS SKIP DYOT BUCKNALL.

Mr. MORE.

The

The GOLD MEDAL, being the Premium offered for gaining LAND from the SEA, was this Seſſion adjudged to the Reverend JAMES FILEWOOD, of Sible-Hedingham, Eſſex, from whom the following Papers and Certificates were received.

SIR,

I HAVE the honour of tranſmitting the account of an embankment in the pariſh of Fobbing, in the county of Eſſex, by which I have gained fifty-ſix acres and four poles, of excellent Land which was overflowed by the Sea; and requeſt that you will have the goodneſs to lay before the Society inſtituted for the Encouragement of Arts, Manufactures, and Commerce, the method I have taken, together with the expence incurred. A few years ſince, I purchaſed an eſtate at Fobbing, to which was annexed a large tract of Land, overflowed by the Sea, which I judged would be a great acquiſi-

tion, could it be embanked in ſuch a manner as to render it ſecure from any high tide.

Not approving of the conſtruction of the old bank, which was nearly overflowed by a very high tide a few years ago, I went into the Iſle of Ely, where I ſaw the embankments were made on ſuch a plan as would enſure the utmoſtſtability; and, after conſulting ſeveral perſons converſant in ſuch buſineſs, I have conſtructed an embankment, which, I truſt, will be a model for future undertakings of this kind in the neighbourhood, where the banks are very indifferent. The ſide of the bank next the ſea has been laid with flags or turf four inches thick, taken from the ſurface near the ſea, which will prevent the bank being injured by froſt, or battering of the ſea: the work has been done by the floor (a floor of earth is twenty feet ſquare, and one foot deep), which is the moſt certain mode of eſtimating ſuch work with preciſion. I agreed with the men for three ſhillings and four-pence per floor; but the very high price

price of provisions last winter induced me to allow four shillings per floor.

The bank is seventy chains, or seven furlongs in length; the base, forty feet; the height, eight feet; top, four feet broad; the slope next the sea, twenty-five feet in length; and the slope next the land, fourteen feet in length; the foreland next the sea is twenty feet wide; the forcland next the land is ten feet wide, between the foot of the bank and edge of the fence ditch on the land side: the earth taken from the pits next the sea beyond the foreland, and addedto thatthrown out of the fence ditch.

		£.	s.	d.
2176	Floors of earth for the bank, taken from the pits next the sea beyond the foreland, flags for the surface being previously pared to lay on the sea slope, at 4s. per floor,	435	4	0
362	Floors of flags or turf, to cover the slope next the sea, at 4s.	72	8	0
	Carried forward	507	12	0

	£.	s.	d.
Brought forward	507	12	0
92 Floors, 282 feet of extra work in the creeks, at 6s.	27	4	9
Cutting ditches to fence the bank and divide the lands, 10 feet wide and 5 feet deep,	61	3	2
Beating the flags on the ſlope,	6	10	0
Barrows and planks for the work,	27	15	0
Straw and buſhes for the creeks,	13	0	0
Cartage and barge hire,	6	0	0
	£. 649	4	11

The whole work has been done in the ſpace of about ſix months, by eighteen men, with the addition of ten more the laſt month, with only barrows and ſhovels: the bank will require no additional expence of chalk or piles, which render marſh eſtates ſo expenſive.

Should

Should the Society deem my exertions of any utility, ſo as to entitle me to their honorary reward, I ſhall think myſelf very highly diſtinguiſhed by ſuch a mark of their approbation.

I am, SIR,

Your moſt obedient ſervant,

JAMES FILEWOOD.

Sible-Hedingham,
Oct. 19, 1796.

Mr. MORE,

WE do hereby certify, that the Rev. James Filewood, Rector of Sible-Hedingham, in the county of Eſſex, and owner of a farm in the pariſh of Fobbing, in the ſaid county, in the occupation of William Spitty, of Horndon, hath embanked from the Sea, a piece of Land adjoining to the ſaid farm, between the 20th of October 1795, and the 12th of April 1796; and that ſuch Land, ſo embanked,

contains fifty-ſix acres and four poles, ſtatute meaſure, excluſive of the ſpace on which the new wall, for the protection of the new incloſure from the Sea, is erected. And we further certify, that the ſaid fifty-ſix acres and four poles ſo gained from the Sea, are ſecurely and ſubſtantially embanked, and that the new wall is of ſufficient dimenſions and ſtrength; and the having laid the ſame with turf next the ſea, adds greatly to its ſtability: the wall is forty feet wide at the baſe, eight feet high, and four feet wide at the top. And we further certify, that the ſaid Land, ſo newly gained by ſuch embankment, is of a fertile nature, and may, when drained from the ſea-water, be equal in value to the adjoining land.

W. THOMAS, Miniſter of Fobbing.
HENRY MARTIN, Churchwarden.
ROBERT MUNDELL, of Billericay, Surveyor.

SIR,

SIR,

BE pleaſed to ſtate to the Committee of Agriculture, that the Land I have gained from the Sea is ſituated oppoſite Canvey Iſland, and adjoining to Fobbing Creek, which comes from an arm of the Sea, beginning at Hole Haven, in Leigh Roads, diſtant about three leagues from the Nore, next the German Ocean: the River Thames, properly ſo called, extends to a tree cloſe to Graveſend; the other part is an arm of the Sea, and is named by Camden, in his Britannia, *Tamiſis Æſtuarium*. The Land was overflowed by ſalt-water every tide, and at low water ſheep were turned on to feed with much loſs, being frequently drowned by the inundation of the Sea, which rendered it of little value, and eſtimated to be worth only one ſhilling an acre to the preſent tenant, who occupies above one hundred acres adjoining, at the rent of one hundred guineas per annum, ſaltings included. At the expiration of the preſent

leaſe,

leaſe, three years from laſt Michaelmas, of a term of twenty-one years, the whole is eſtimated to be worth forty ſhillings an acre.

I am now draining the ſalt-water from the rills, which will be taken away by the tunnel at low water; and I propoſe to put it into the beſt cultivation as ſoon as poſſible.

I am, SIR,

Your obedient ſervant,

JAMES FILEWOOD.

Sible-Hedingham,
November 21, 1796.

Mr. MORE.

SIR,

YOU will be ſo obliging to lay before the Society for the Encouragement of Arts, Manufactures and Commerce, the account of draining the Land I lately gained from the Sea; and at the ſame time I beg leave

leave to return my beſt thanks for the high honour conferred on me.

At the time of making the embankment, I ordered a tunnel (with a foot run inſide, and ſixty feet in length, made with four three-inch fir planks pinned together, and brown paper, daubed with tar, put between the joints) to be placed under the bank, ſix feet below the ſurface of the earth, where the bank ſtood at the loweſt part of the land. Fortunately there happened to be an outfall, to carry away the water from the tunnel when the tide was going down; an oak head and ſlacke is placed on the end next the land, and a ſea door hung on the end next the ſea, which opens and ſhuts as the tide ebbs and flows: a ſmall ditch has been made from the tunnel into the outfall, and an apron laid at bottom, and wharfed on each ſide, to prevent the ſea door being dammed by the ooze or earth falling in; a ditch has alſo been made, fourteen feet wide, and ſix feet deep, and in length one hundred and ſeventeen rods, through the middle of the land, which has already

already drained all the ſmall rills, and will in a ſhort time effectually drain the holes and creeks in which any water is left.

Expence of Draining.

	£.	s.	d.
To a tunnel with oak head and ſlacke ſea door, &c.	18	5	0
To widening the ditch four feet, and deepening it two feet,	11	14	0
£.	29	19	0

The Land at preſent has a very fine green ſurface, and will ſoon, I have no doubt, become very good freſh graſs.

I am, SIR,

Your moſt obedient ſervant,

JAMES FILEWOOD.

Silke-Heddingham,
February 12, 1797.

MR. MORE.

The

The GOLD MEDAL, being the firſt Premium offered for the Culture and Cure of RHUBARB, was this Seſſion adjudged to the Rev. JAMES STILLINGFLEET, of Hotham, in Yorkſhire, whoſe Papers on that ſubject are here inſerted.

SIR,

I SEND you ten pounds of Rhubarb in claim of the Premium offered for the cultivation &c. of the Rheum Palmatum in England, which I beg leave to ſubmit to the inſpection of the Society; and if judged worthy their approbation, ſhall think myſelf very happy.

The mode of culture and cure which I uſe is very ſimple, and, as I believe, the former eſpecially, not uncommon. Early in the month of April I chiefly ſow the ſeed on a ſandy loam, which I find to be the beſt ſoil. I prefer an aſpect to the ſouth-eaſt; but

in that caſe, care muſt be taken to ſhelter the young plants from too powerful a ſun in the middle of the day, till they have obtained a good degree of ſtrength: an eaſtern aſpect might be preferable, if the late froſts were not too ſevere for them.

When about the ſize of young cabbages, or ſmaller, they may be tranſplanted into beds of four or five feet wide, at the diſtance of five or ſix feet aſunder; but I always think the plants which remain in the ſeed-bed, when well thinned, make the larger and better plants, as they ſtrike deeper and more freely. It will conduce to their ſtrength and growth to raiſe the bed ſomewhat above the alleys, that the plants may be kept dry; for I find this plant will not bear much wet, being ſubject to rot; though a very dry ſand will not do. I do not adviſe much dung, as it tends to canker them; a good free ſoil, in a moderate ſtate of cultivation, ſeems to ſuit them beſt; or, if mulch be uſed, it ſhould be thoroughly rotten, and almoſt reduced to mould. The young plants in the end of autumn ſhould have the ſcrapings of the alleys

alleys thrown over them, and alſo in ſpring, when the plants are about an inch above the ground; this both gradually raiſes the bed, and encourages their growth.

The beſt age for taking them up is about five or ſix years old, according to the ſize of the plant: if younger, they are defective in their ſtrength and efficacy; if older, they are ſtrong in taſte, and more rough in their operation. I prefer to take them up as near to the winter ſolſtice as I can; for though the powers of nature might be more active in February, yet they dry better and ſhrink leſs. I generally find they loſe about four fifths in drying.

As ſoon as they are taken up, after diveſting them of the earth, I waſh them thoroughly in water, working them round with a birch broom, ſcrubbing them after with a hard bruſh; nor did I ever find any inconvenience in this mode, if done immediately, and the plants not ſuffered to remain in the water, for this they will not bear; I then wipe them with a coarſe cloth,

cloth, and lay them in the ſun, or wind, to dry, cutting them into pieces, as may beſt ſuit the further proceſs. The rind is then pared off rather thin, and I ſtring the pieces together, perhaps twenty or thirty on a ſtring, and hang them up in my kitchen: I never found but the common warmth of the kitchen was fully ſufficient for them, and a circumſtance, I think, much to be attended to, and in which ſome have erred by adopting contrary mode. The more gradually they are dried, the better for uſe: mine are fully dried in half a year, or leſs. I do not ſcoop out the middle, as ſome do, for I look upon this as the moſt uſeful part of the whole, though not the ſtrongeſt: the large pieces I quarter, that they may dry more thoroughly.

I ſend you a large one whole, which has been taken up ſix or ſeven years; likewiſe a ſmall bottle, containing ſome of the powder, as I uſe it, which I think very little, if at all, inferior to the Turkey Rhubarb in its effects. Through want of the neceſſary apparatus

apparatus for a more fine preparation, my powder will appear coarſe; but living in a country village, I muſt do as I can.

I have uſed it fifteen years and upwards, as a conſtant phyſic for the poor of my pariſh and the neighbourhood, and never found it to fail of ſuch effect as Rhubarb is deſired to promote, eſpecially if a tea-ſpoonful of Magneſia Alba be added to each doſe of twenty or twenty-five grains.

The roots that grow with me are at five years old, twenty pounds or more in weight. The whole ſtock which I offer to the Society as a candidate, is thirty-two pounds of cured Rhubarb, of equal quality with that now ſent, though they are of the larger pieces; you will pleaſe to make allowance for its rough appearance, which ariſes, as I mentioned before, from the want of a proper hand to prepare it: I ſhewed it to one of the firſt gentlemen in the medical line in theſe parts, Mr. William Hey, of Leeds, who did me the honour to ſay he never ſaw any of ſo good an appearance raiſed in England. I ſhould be obliged to

you, after it has undergone its proper examination, if you could recommend to me a perſon who will purchaſe a good part of it, and let me know what he will give per pound; as, if I find encouragement, it is my wiſh to go on in the cultivation of this plant.

If the Society wiſhes any further information which I can give, any queries propoſed to me by letter, ſhall be duly attended to. Wiſhing all ſucceſs to your laudable inſtitution, I remain with great reſpect,

SIR,

Your moſt obliged humble ſervant,

JAMES STILLINGFLEET.

Hetham, Oct. 25, 1796.

Mr. MORE.

WE, whoſe names are underwritten, do hereby teſtify, that the ſpecimen of the Rheum-Palmatum, ſent to the Society for the Encouragement of Arts,

&c. for their inſpection, &c. by the Rev. James Stillingfleet, of Hotham, is, as far as we can judge, of the ſame quality with the remainder of the thirty-two pounds now in his poſſeſſion.

WM. HEY, jun. Surgeon, Leeds.

THOMAS DIKES, L L. B. Miniſter of St. John's, Hull.

JOHN WOOD, North Cave, Yorkſhire.

The GOLD MEDAL, being the firſt Premium offered for the greateſt number of Plants of the RHEUM PALMATUM, or True RHUBARD, cultivated in the year 1796, was this Seſſion adjudged to Mr. THOMAS JONES, of Fiſh-ſtreet Hill, London, whoſe Paper on that ſubject is here inſerted.

SIR,

IN the year 1796 I planted nine hundred and thirty-five plants of the Rheum Palmatum, or True Rhubarb, agreeably to the rules preſcribed by the Society for the Encouragement of Arts, Manufactures, and Commerce; I have therefore to requeſt you will preſent the incloſed Certificates, in ſupport of my pretenſions to their GOLD MEDAL. Having ſaid ſo much upon this ſubject on a former occaſion (ſee Vol. XI. p. 113), I have very little to add upon the preſent.

preſent. Upon two points, it may be recollected, I then laid a particular ſtreſs; the abſolute neceſſity of guarding againſt the ill effects of a ſuperabundancy of moiſture: and as it is eſſential the roots ſhould be of a conſiderable ſize, ſo the propriety of allotting to each a proportionable ſpace of ground, equal, I ſuppoſed, to ſix feet ſquare. For theſe purpoſes, it was further obſerved, I adopted a mode of culture different from any of my predeceſſors; this conſiſted in raiſing a diſtinct hill for every plant, inſtead of ſituating them over ſo many holes: in the former, it is obvious, with every advantage of room, all unneceſſary moiſture has an opportunity of eſcaping, while in the latter it cannot fail of being confined, to the certain detriment of the plants. Truth, however, obliges me to acknowledge, theſe benefits are attended with an inconvenience which, it muſt be confeſſed, I was not at firſt aware of; I mean the difficulty of keeping the plantation free from weeds, and conſequently increaſing the expence of cultivation. I have,

for theſe reaſons, in the preſent inſtance, abandoned my original method; but in adopting another, being now aſſured of its importance, have been ſtudious to preſerve the ſame principle; excepting that the Rhubarb beds are broader, and the trenches much deeper, each communicating with a ditch to convey the water from ſprings or immoderate rains entirely away; they reſemble the aſparagus beds in the neighbourhood of Graveſend or Batterſea. By the certificates the Society will likewiſe perceive, that the diſtances between the plants are reduced to four feet: this alteration aroſe from obſerving, that although the foliage will frequently meet at a much greater diſtance, the roots never occupy ſo large a ſpace as the Society had been led to ſuppoſe. Plants of every deſcription are more or leſs precarious, but ſcarcely any ſo much ſo as the Rhubarb; hence, a method of planting which, comparatively ſpeaking, reduces the cultivating ſo valuable an article to a certainty, cannot fail of being acceptable: I will therefore ſubjoin, for the benefit

benefit of future cultivators, a mode of proceeding I have found ſucceſsful, beyond the moſt ſanguine expectation. Inſtead of placing the ſeedling plants where they are to remain for a crop, as is uſually recommended, beds ſhould be prepared of fine mould, (if ſifted the better) of about twelve or eighteen inches deep; upon theſe, when arrived at a proper ſize in the ſeed bed, reſpecting which enough has already been ſaid by others as well as myſelf, that is, when they have attained the height of four or five inches, and have thrown out as many leaves, they may be planted at eight inches aſunder. After directing the ſeed to be ſown in March, the planting ſeaſon muſt remain diſcretional, as all the plants will not be ready at the ſame time: the largeſt ſhould be firſt ſelected, carefully drawing them out, ſo as to deſtroy as few fibres and diſturb the remainder as little as poſſible; I have generally well watered the bed previous to their removal, which has greatly facilitated the operation. In the culture of Rhubarb, the whole difficulty conſiſts in

bringing them through their firſt ſeaſon; and to do this, a great deal of care and circumſpection are neceſſary: if the weather is hot and ſultry, the nurſery muſt be ſhaded; at all events, it muſt be continually watered; for though this element is ſo prejudicial to the older plants, it is now of the firſt conſequence.—As for planting in general, ſo for theſe in particular, a wet or cloudy day ſhould always be preferred; and if the weather continues ſo for two or three days ſucceſſively, and every other circumſtance properly attended to, not more than four or five in a hundred will moſt probably be loſt. In about a month from this period, the roots will have made freſh ſhoots, and new leaves will have ſucceeded the former, which commonly, notwithſtanding all our care, will wither away. It is now at the option of the cultivator, either to let them remain in theſe nurſery-beds, as I call them for diſtinction ſake, till the enſuing ſpring, or not: if the ſummer is favourable, and in the mean time his land intended for the plantation, is properly prepared,

pared, I would recommend him to complete it without further delay. After trenching my ground generally three feet deep, I ſowed it with carrot-ſeed of the largeſt ſort I could poſſibly procure: the ſurface by this means was preſerved from weeds, and rendered finer by repeated hoeings, and the bottom kept light and open. At different periods through the ſummer, with a tranſplanter or a circular ſpade, taking care, as the gardeners expreſs themſelves, to preſerve a ball, I removed them, at proper diſtances, into the midſt of the carrots, deſtroying thoſe which might obſtruct the growth of the other; and if this is effected judiciouſly, this laſt removal will not at all affect the young Rhubarb, while another benefit ariſes from the carrots, and very well deſerving of notice, that if the weather at any time proves unuſually hot, their foliage will preſerve the plants from the rays of the ſun, till their own have acquired a ſufficient growth. After this, nothing that I know of is neceſſary to be done, but to keep the plantation clean, and the trenches open.

When

When I laſt had the honour of addreſſing the Society, I pledged myſelf to purſue this ſubject: if, Sir, you are of opinion that this Letter contains any hints of ſufficient uſefulneſs to engage their attention, you will much oblige me by the communication; expreſſing, at the ſame time, how ſenſible I am of the honour they have already done me, and the pleaſure I experience from the hope that perhaps they may diſtinguiſh me again, by the truly flattering teſtimonial of another Gold Medal.

I am, SIR,

Your obliged humble ſervant,

THOMAS JONES.

Fiſh-ſtreet Hill,
Feb. 12, 1797.

Mr. MORE.

THIS is to certify that Mr. Thomas Jones, of Fiſh-ſtreet Hill, London, has planted in a piece of ground at Four-Tree Hill, belonging to me, in this pariſh, nine

nine hundred and thirty-five Plants of the Rheum Palmatum, or True Rhubarb, in the year 1796, at four feet diſtance from each other, and that they are in a thriving ſtate.

WILLIAM SHAW.

Four-Tree Hill, Enfield,
Feb. 1, 1797.

The GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS, at the option of the Candidate, being the Premium offered for improving LAND lying waſte, was this Seſſion adjudged to JOHN BILLINGSLEY, of Aſhwick Grove, near Shepton Mallet, Somerſet, Eſq. (who made choice of the SILVER MEDAL and TWENTY GUINEAS), and whoſe Account and Certificates are hereunto annexed.

GENTLEMEN,

HAVING for the laſt twenty-five years been extenſively engaged in the cultivation of Waſte Lands, and being deſirous that others ſhould profit by my experience, and be encouraged to exert themſelves in like manner, by the probability of ſucceſs; I have taken the liberty of tranſmitting to your moſt uſeful and reſpectable Society, the

the following account, which is faithfully copied from my books, and is an accurate detail of every diſburſement. You will be pleaſed to conſider me as a candidate for your Premium, Claſs 113; and, if I ſhould be thought worthy thereof, I will keep the ſame as an honourable and flattering teſtimony of your approbation.

I am, Gentlemen,

Yor moſt humble ſervant,

J. BILLINGSLEY.

Aſhwick Grove,
Near Shepton Mallet, Somerſetſhire,
November 27, 1796.

Mr. MORE.

EXPERIMENT.

FIRST purchaſe, incloſing, cultivating, and manuring, of 124 acres of land, part of the Foreſt of Mendip, within the pariſh of Wells, in the county of Somerſet, bought October, 1794, at a public auction of the Commiſſioners appointed under an

act for incloſing and dividing the waſte lands within the ſaid pariſh.

The ſoil of this land is a gravelly loam, with a lime-ſtone rock, at the depth of ſix or eight inches; the climate, cold and moiſt; ſpring late, and ſummer ſhort; its altitude about 1200 feet above the level of the Briſtol Channel.

		£.	s.	d.
1794.	To amount of purchaſe, conveyance, &c. included - -	1115	13	6
October.	To 337 rope (20 feet) of dry wall, at 7s. per rope (1) - -	117	19	0
	To levelling many large hillocks, raiſed by ancient miners (2)	30	11	7
	Carried forward	£.1264	4	1

(1) One ſide of the ground joined an incloſure, which, of conſequence, leſſened the boundary fence—(here we make three ſides). This wall fence is 5 feet 6 inches high, 2 ½ feet wide at bottom, and 15 inches at the top.—The top is covered with a turf of ſix inches, put on in the form of an arch, making, in the whole, an height of ſix feet.—Particulars of expence as follow :—

	£.	s.	d.
To quarring eight load of ſtones, at 3d. per load - -	0	2	0
To wheeling the ſame, 50 or 60 yards - - -	0	2	4
To building and levelling foundation - - -	0	2	6
To turfing - - - - - -	0	0	2
	0	7	0

Under this wall a low bank was raiſed, about 1 ½ foot high, and 3 feet wide, in the centre of which quick was planted; and, as the land will be in tillage for three or four years, the quick will, by that time, be of ſufficient ſtrength to defy the browſing of cattle.—In about ſix years, it is ſuppoſed, that the quick will be ſufficient fence for itſelf, and the wall may be then ſold, to repair the adjoining turnpike road, and will be worth 4s. per rope, or more than half its original coſt.

(2) In levelling theſe hillocks, great care ſhould be taken to bury the rubbiſh, and to keep the good mould on the ſurface.

1795.			£.	s.	d.	£.	s.	d.
	Brought forward					1264	4	1
From *Jan.*	To firſt ploughing, at 14s. per acre, 124 acres (3)		86	16	0			
to *July.*	To ſecond ditto, at 12s.		74	8	0			
	To dragging, three turns in a place, 6s. (4)		37	4	0			
Aug. & Sept.	To building a lime-kiln (5)		13	10	0			
	Carried forward		211	18	0			

(3) This operation was performed with a very ſtrong plough, having a long point to the ſhare; ſix ſtout oxen, a man, and a boy, with an attendant to repair balks, &c. did, in fine weather, nearly an acre a day; but, as wet days frequently occur in ſituations ſo elevated, the average did not amount to more than ¾ of an acre a day: however, 14s. per acre may be conſidered as an ample allowance.

(4) This is very ſevere work for the oxen, and I think horſes better calculated to execute this drudgery; at any rate, it ſhould be performed with great care and attention.

(5) The form of the lime-kiln is that of a French bottle; the height, 16 or 17 feet; the length of the neck, in which the calcination is wholly performed, 7 or 8 feet; its diameter, 3½ feet; and the diameter of the belly, in the largeſt part, 10 feet; and the particulars of the coſt as follows:—It is built on the declivity of a hill, by which means the top is on a level with the adjacent rock.

	£.	s.	d.
Digging out the concavity (this furniſhed ſtones)	1	11	6
Building	5	5	0
Thirty quarters of lime, &c.	3	0	0
Shelf-houſe to hold the lime	3	13	6
	13	10	0

								Brought forward	£.211	18	0	£.1264	4	1
	To liming 40 acres, 20 quarters to each acre, or 6,400 buſhels, at 2¼d. per buſhel (6)								60	0	0			
1795.	To hauling out 800 qrs. of lime to 40 acres, at 5d. per qr. (7)								16	13	4			
July, Aug.	To covering and ſpreading, 2s. per acre								4	0	0			
& Sept.	To harrowing the lime	2s.							4	0	0			
October.	To ploughing, very ſhallow,	5s.							10	0	0			
	To harrowing	1s.							2	0	0			
	To ſeed-ploughing	6s.							12	0	0			
N	To harrowing	2s.							4	0	0			
								Carried forward	324	11	4	1264	4	1

(6) In a kiln of this conſtruction may be burnt 480 buſhels of lime per week, and this will conſume 130 buſhels of ſmall refuſe coal.—The coal coſts (carriage included) 6d. per buſhel, and the burning 5d. per quarter; making, in the whole, 1s. 6d. per quarter, or 2¼d. per buſhel.

(7) Two carts, holding 32 buſhels, with 2 men and a boy, and 4 horſes, will haul out, to the average diſtance of half a mile, 8 cart loads, of 32 buſhels, in a day.—The boy ſhould be furniſhed with a rod, of a perch in length, and a baſket, filled with ſmall lime-ſtones. One of theſe ſtones he ſhould drop, at the diſtance of each perch, and the carter ſhould follow, with a buſhel of lime: each cart-load being depoſited in 32 heaps, making, in the whole, 160 buſhels per acre.—A man ſhould follow, to cover the heaps of lime with earth.

		Brought forward	£.324	11 4	£.1264	4 1
November.	To ſeed-wheat, 40 acres 120 buſhels, at 12s. - -		72	0 0		
1796. *Apr.*	To rolling with heavy roller - - - -		3	0 0		
From *Mar.*	To lime for 84 acres, 20 qrs. or 160 buſhels to each acre,					
to *Sept.*	1680 qrs. or 13,440 buſhels, at 2d¼. per buſhel - -		126	0 0		
	To hauling out the ſame, at 4d. per quarter - -		28	0 0		
	To covering and ſpreading, at 2s. per acre - - -		8	8 0		
	To harrowing in the lime, 2s. ditto - - -		8	8 0		
Ap. & May.	To ſeed-ploughing for 24 acres of white oats, 6s. -		7	4 0		
	To 18 qrs. of ſeed oats, at 24s. per qr. (8) - -		21	12 0		
	To harrowing in ditto, and ſowing, 2s. per acre - -		2	8 0		
June.	To rolling ditto 1s. ditto - -		1	4 0		
		Carried forward	602	15 4	1264	4 1

(8) Theſe oats being ſown late, and followed by cold and pinching winds, in the months of June and July, did not flouriſh. They ripened late, and were not harveſted till October.—Perhaps it might have been more profitable to have had potatoes, or turneps, or buck wheat; either of which would have been a good preparation for a ſpring crop; and, both united, I conſider as more valuable than a crop of wheat.

	Brought forward	£.602	15 4	£.1264	4 8
Sept. & Oct.	To 170 bushels of seed wheat, for 66 acres, at 10s.	85	0 0		
	To brining, liming, and sowing, at 4d. per acre	1	2 0		
	To ploughing in ditto, and harrowing, at 7s.	23	2 0		
	To 20 bushels of winter vetches, on eight acres of oat stubble	10	0 0		
	To sowing ditto	0	2 0		
	To ploughing in ditto, and harrowing, at 7s. per acre	2	16 0		
	To bird-keeping (9)	1	4 0		
				726	1 4
October.	To interest of money to this time			150	0 0

N 2

To White Thorn Fences, viz.

1794-5.	Making a bank under the wall, one foot and half high, and three feet wide, 337 rope, at 4d. per rope	5	12 6		
	To 80 plants in each rope, at 1s. per hundred	12	8 0		
	To planting ditto, at 2d. per rope	2	16 2		
	Carried forward	20	16 8	2140	5 5

(9) This amounts to 5l. 16s. 6d. per acre, seed corn for 106 acres of wheat, 24 acres of oats, and 8 acres of vetches, included.

		Brought forward	£.20 16 8	£.2140	5 5
1796. October.	To 260 rope of ſubdiviſion fence-bank, 4 feet wide and 1½ high, at 6d. per rope (10)		6 10 0		
	To thorn plants, 20,800, at 1s.		10 8 0		
	To a dead fence, at 1s. 4d. per rope		17 6 8		
	To making ditto, at 3d. per rope		3 5 0		
	To a pool, or reſervoir (11)		20 0 0		
		Carried forward	78 6 2	2140	5 5

(10) This ſubdiviſion-fence divides the piece of land into four parts; and a pool, or reſervoir, is placed in the centre, ſo as to ſupply water to the whole; and, as the land lies on a declivity, the running of the ditches will keep it full, unleſs a long drought ſhould occur.

(11) This pool is 50 feet long, 14 feet wide, within the walls, and 6 feet deep in the pan, riſing by a gentle inclined plane. Particulars of the coſt as follows:—

		£.	s.	d.
Pool.	To digging out the concavity.—N. B. This furniſhed ſtone ſufficient	2	2	0
	To maſons work	10	10	0
	To 50 quarters of lime, at 2s. per quarter, hauling included	5	0	0
	To 14 cart load of coal-aſhes	2	2	0
	To 3 load of clay	0	6	0
		20	0	0

Theſe pools, if well made, ſeldom loſe any water, and may be kept in repair at a trifling expence.

1796.				
	Brought forward	£.78 6 2	£.2140 5 5	
To fix gates and posts, of oak, (12) - - -		8 8 0		
To Expences hereafter to be incurred about Fences, viz.				
To 260 rope of dead hedge, to inclose the quick on both sides, at 1s. 7d. per rope - - - -		20 11 8		
A renewal of both these dead fences - - - -		41 3 4		
To weeding twice a year, for three years - - -		3 5 0		
To weeding the plants under the wall - - - -		4 4 3		
To one dead fence, to secure ditto, 337 rope, at 1s. 7d. per rope		26 13 7		
			182 12 0	
	Carried forward		£.2322 17 7	

(12) Particulars of cost.

		£.	s.	d.
Oak Gate.	Hanging post - - -	0	5	0
	Falling ditto - -	0	4	0
	Oak gate, four bars - -	0	12	0
	Iron work - - -	0	5	6
	Putting up - -	0	1	6
		1	8	0

Brought forward			£.2322 17 5
BUILDINGS.			
To a barn, 46 feet long, 20 feet wide, and 16 feet high, containing 158 perch of wall (13)	£. 81	0 0	
Stalling and ſhelf-houſe (14)	30	0 0	
Pool, ſame dimenſions as the former, in farm-yard	20	0 0	
			131 0 0
Total Expenditure			2453 17 5

(13) Particulars of coſt.

BARN.

	£.	s.	d.
158 perch (15 feet) of wall, at 1s. 8d. per perch, quarring and wheeling the ſtones included.—N. B. Stone cloſe at hand	13	13	0
Digging out foundation	1	1	0
Elm roof, at 22s. per ſquare	16	14	0
Doors, linterns, ſheaf-holes, partitions, and corn-bian, and lining walls	15	3	0
Tile, 7,500 plain tile	11	16	3
Labour, putting on, and laths	9	10	9
Freeſtone, for water labling	1	2	9
Three-inch elm barn floor	12	0	0
	81	0	0

(14) This ſtalling is made ſo as to anſwer two purpoſes; namely, a foundation for a corn-moy, and a comfortable reſidence under for cattle.—Coſt as follows:—

	Brought forward			£.2453 17 5
1796. *Oct.* Deduct produce at this time—viz. wheat, 40 acres, 24 bushels	£.	s.	d.	
to each acre, at 8s. - - - - - -	384	0	0	
Oats, 24 acres, 40 bushels to each acre, at 2s. 6d. (15) -	120	0	0	
Wheat on ground, 66 acres, valued at 4l. per acre (16) -	264	0	0	
Vetches, 8 acres, valued at 2l. per acre - - -	16	0	0	
				784 0 0
				1669 17 5
Profit				1830 2 7
				£.3500 0 0

N 4 Two walls, 18 feet distant from each other, and 100 feet in length, with three door-ways, opening into the farm-yard, 9 feet high each, with a row of projecting brick, both on the outside and inside, to prevent the access of vermin to the corn. These walls have strong cross pieces of timber, extending from one to the other, and on them are placed more than 70 load of corn.

	£.	s.	d.
148 perch of wall, lime included - - -	18	13	10
1950 bricks - - - - - -	2	8	9
Farm-yard, wall, and shelf-house - -	8	17	5
	30	0	0

(15) The straw, both of the wheat and oats, will pay for harvesting and threshing.

(16) Fourteen acres of this wheat was sown on the oat stubble, the remaining 52 acres on the fallow.

	£.	s.	d.	£.	s.	d.
Brought forward				3500	0	0
I can now let this inclosure for 150l. per year, or at 25s. per acre (nearly); the value in fee, therefore, at 25 years purchase, is	3750	0	0			
From which we will deduct, for a dwelling-house, stable, &c.	250	0	0			
	3500	0	0	3500	0	0

JOHN BILLINGSLEY.

Ashwick Grove, Nov. 17, 1796.

To the Society for the Encouragement of Arts, &c.

WE, the underſigned, do certify, that JOHN BILLINGSLEY, Eſq. of Aſh-wick Grove, did, about two years ago, purchaſe a lot of waſte land, part of the Foreſt of Mendip, containing one hundred and twenty-four acres, which, in its open and commonable ſtate was of very little worth; which ſaid land is now ſo meliorated, by incloſing, ploughing and liming, as to be advanced to more than four times its original value; and we verily believe that the ſtatement of expence, &c. as hereunto annexed, may be depended upon as authentic and correct.

Wells, Dec. 1, 1796.

CLEMENT TUDWAY,
Member for the City.
JOHN LOVELL, Mayor.

Soil,—A gravelly loam, as mentioned in the account.

The

The following ACCOUNT and CERTIFICATES, relative to the Improvement of WASTE MOOR LAND, having been received, the GOLD MEDAL, being the Premium offered on that ſubject, was this Seſſion adjudged to WILLIAM OAKELEY, Eſq. of Tan y Bwlch, near Feſtiniog, in Merionethſhire.

SIR,

I TAKE the liberty of conveying to you plans of ſome lands lately lying unincloſed, and nearly unprofitable, and requeſt the favour of you to lay them, with the annexed Papers, before the Society for the Encouragement of Arts, Manufactures and Commerce; and I ſhall be happy if my endeavours entitle me to any mark of their approbation; the quality of this land was in general peat moſs, and it was liable to ſudden

and rapid floods, as alſo to be overflowed to the depth of ſeveral feet by ſpring tides, having, in many places, old ditches, peat hollows, and other inequalities; the eighty-ſeven acres were embanked before I came into poſſeſſion, but no draining or internal improvement had taken place. Obſerving, that if the floods and tides were effectually kept out, the crops, manure, and fences, would be ſecure from their ravages, I have now completely drained, divided, and laid out this land into regular fields.

Along the upper part is a ſtrong fence, formed of turf and ſoil, with a deep ditch on each ſide, acting as a main drain, which cuts off the water from the high grounds, and conveys it to the river through a wooden trough and valve laid underneath the embankment; the fences of each field are formed in the ſame manner, with ditches alſo on each ſide, and are all, as well as the main fence, planted with the Black Willow, which grows well, and affords great ſhelter to cattle from the weſterly ſtorms; the leſſer

leſſer drains are covered, being made with a turf ſet in as a wedge, leaving a ſpace of eight or ten inches for the water, which in this cohesive ſoil are durable, and they diſcharge into the fence-ditches or main drain, with which they all communicate, and are about twelve yards aſunder.

Other fifty-four acres are only ſeparated by a rivulet which turns a mill, ſpace being left for its diſcharge to the river; this land I have alſo drained, divided, and embanked, in the ſame manner; the bank riſes from a baſe of twelve yards, is three feet high, and one over at the top; and as I had remarked that the ditch or hollow from which the other had been taken, was left with a ſudden ſtep or ledge, and was trodden down and much poached by cattle, the turf was firſt carefully taken off, a ſpace of twenty-four yards, being the baſe of the bank, and the ſurface of the ditch from whence the ſoil was taken to form it, the bank and ditch being properly laid out and ſloped, the turf was relaid on each, and, a regular ſurface being preſerved

preſerved, no land is loſt, and the whole remains firm and uninjured by cattle, affording better graſs than any other part, beſides a more neat and pleaſing appearance.

My gardener has taken the admeaſurement of the embankment, drains, and fences, to which I have added the expence of each: I have purpoſely omitted timber for continuing the fences over the bank to the river by poſts and rails and for gates, &c. becauſe perhaps they are done at rather more expence than abſolutely neceſſary, and this muſt of courſe vary in every work of this nature.

Between forty and fifty acres have already had a top-dreſſing of ſoil and earth from roads, ditches, &c. with a little lime mixed, and the crops of hay and after-graſs have been abundant; even coarſe gravel and ſand have, (laid on thick) from preſſure, a very good effect.

Should my firſt attempt at Agricultural Improvement claim the notice of the Society, I ſhall purſue the ſyſtem with increaſed

ſatisfaction on between two and three hundred acres more of ſimilar lands already embanked on this river.

I am, SIR,

Your moſt obedient ſervant,

WILLIAM OAKELEY.

Tan y Bwlch, in the Pariſh, of Feſtiniog, Merionethſhire, 24th of December, 1796.

Mr. MORE.

SIR,

I AM favoured with your letter of the 21ſt inſtant, and have now the pleaſure of replying to the queries the Society have honoured me with.

I began the Improvements of the Moor-Lands in the year 1791, but having been pretty much employed in building, clearing, and fencing, Uplands and Wood-lands, the whole was not perfected until the year 1795; though I ſoon began to perceive the advan-

advantage reſulting from the undertaking, yet I withheld my communication until I had, in the moſt ſatisfactory manner, aſcertained, it, which I now have, by actually letting ſome of the inferior parts of theſe lands for Two Guineas an acre; previous to my beginning this improvement they were of little value, without fences, abounding with ruſh and bog myrtle, and, in many places dangerous to cattle, from old choaked up ditches and ſwamps, affording only on the drieſt ſpots, a light, and (from being ſubject to floods) a precarious crop of hay; extremely prejudicial to ſheep from its wetneſs, and, after the firſt autumnal flood or tide, of no profit whatever; the crops are now neat and ſecure; all the drains and fences remain firm and uninjured by cattle; and the whole is yearly increaſing in value: the arable pieces do not exceed twenty-five acres, and conſiſt of a ſandy kind of loam.

I am SIR,

Your obliged humble ſervant,

WILLIAM OAKELEY.

Tan y Bwlch,
Feb. 28, 1797.

P. S. I have nearly completed the weeding, fencing, and arranging, of conſiderable tracts of Oak Woodlands, of various growth, lately lying open to the treſpaſs and deſtruction of both tenants and their cattle; and when they have been ſurveyed and meaſured, I ſhall have great pleaſure in repreſenting the ſtate they are in to the Society, if it falls within their deſigns to notice it.

Mr. MORE.

Meaſurement of Fences and Drains on the eighty-ſeven Acres.

Raiſed Sod Fences, with a ditch on each ſide, planted with Black Willows.

	£.	s.	d.
3,674 yards, at 2s. per rood (of eight yards) - - - -	45	18	0
Covered turf drains, 22,537 yards, at 3s. per rood - - - -	35	4	0
Levelling old hollows, &c. - -	20	0	0
Carried forward	101	2	0

Meaſure-

Meaſurement of Fences, Drains, and Embankment, on 54 Acres.

	£.	s.	d.
Main drain, 849 yards, done at 3s. per rood (of 8 yards) - - - -	15	18	0
Raiſed ſod fences, with a ditch on each ſide, planted with black willow, 790 yards, at 2s. per rood - - - - -	9	18	0
8,546 yards of covered turf drains, at 3d. per rood - - - - -	13	7	0
1,423 yards of embankment, at 19s. per rood - - - - -	169	2	0
Total expence (excepting timber) of improving 142 acres of peat land -	309	7	0

I DO hereby certify that the above is a juſt and accurate meaſurement of the Fences, Drains, and Embankment, made by my maſter on lands in the pariſh of Feſtiniog, and the ſame was taken by me in the month of December, 1796.

JOHN JONES,
Gardener to William Oakeley, Eſq.

I EVAN OWEN, of Feſtiniog, in the county of Merioneth, do certify, that I have ſurveyed the Lands drained and improved by William Oakeley, Eſq. of Tan y

O Bwlch;

Bwlch; and that, from my experience of the value of lands, having the management and letting of ſeveral large eſtates in this county, I believe a conſiderable part thereof to be worth two pounds five ſhillings per acre, and no part of it under one pound five ſhillings per acre; and that it will yet increaſe conſiderably in value; as witneſs my hand, this 27th of December, 1796,

Ev. Owen.

I CERTIFY that I have long known the Lands mentioned by Mr. Oakeley in his letter to the Society for Encouragement of Arts, Manufactures, and Commerce; and that the account therein contained, of his improvement, is correct, the Land producing good crops and paſturage, and being now in all reſpects fit for the occupation of tenants, and for a regular courſe of huſbandry.

John Gryffydh,
Rector of Feſtiniog, in the county of Merioneth.

The

The following Account, of an improvement of ſome Barren Lands in the mountainous parts of Weſtmoreland, having been received, the Society this Seſſion voted their SILVER MEDAL, as a Bounty, to Mr. JAMES TODD, of Langdale, near Orton, not only as a reward to him for his exertions on this ſubject, but as an inducement to others, ſituated in the barren parts of the kingdom, to follow his laudable example, and thereby increaſe the value of their own property, and add at the ſame time to the comforts and conveniences of their neighbourhood.

SIR,

I HAVE drawn up an account of the cultivation and produce of my Eſtate, which I believe to be accurate: I have alſo added an obſervation or two on the ſtate of this country, and the real advantage ariſing from the cultivation of Land that may be properly termed Waſte, in expectation that theſe additional remarks will prove acceptable to

perſons engaged in ſuch ſpeculations. When we conſider the ground in queſtion, in an uncultivated ſtate, not to be worth more than two ſhillings per acre per annum, we may well ſay there is great room for improvement: however low this calculation may ſeem to a ſtranger, there are ſeveral hundred acres of Land in my neighbourhood, which have been incloſed many years, rented at preſent at no more than two ſhillings an acre, and ſome not ſo high; nevertheleſs, they are as capable of cultivation as this of mine.

From ſeeing the preſent worth ſo very trifling for Land already incloſed, and ſituated in a country where lime-ſtone is plentiful, I was determined to make trial of a few acres; which, if I found to be advantageous, would lead me to purſue the plan, and alſo might be a means of encouraging others to adopt the ſame.

Induced by theſe views, I proceeded on my deſign, and made choice of a field, the ſoil of which conſiſted of a blackiſh earth, or, what is commonly called, peat moſs, to the

the depth of about ſix or eight inches. Underneath lies a ſtiff bluiſh clay; and the only vegetable produce was a ſpongy moſs, bent-graſs, and in ſome places a kind of dwarf ruſh, growing in bunches: with theſe were mixed ſome courſe half-dead graſſes, which all cattle refuſed, except ſheep, in winter, when every other plant was deſtroyed, and the ground become bare. The field I pitched upon for the experiment was rather too wet; but I choſe not to be at the expence of draining, though I believe it would have been the beſt for the production of crops, and much better to work on. I began the firſt operation by paring off the ſurface, to the depth of about three inches, which, as ſoon as dry, was burned in heaps at convenient diſtances, for the benefit of ſpreading the aſhes. This was done in the ſpring; after which I laid on thirty buſhels of lime, per acre, then ploughed it ſlightly over for a crop of Turneps; I tried one part without lime, in place of which I laid on cows dung: but I found it did not anſwer for Turneps, nor even for Oats.

The annexed eſtimate of the expences of cultivation ſhews, that a ſingle crop of Turneps, provided it turn out well, will defray the charge of breaking up. The ſpring following I had the ground well ploughed over, and ſown with Black Oats, excepting a part which was ſown with White haſty Oats: the latter afforded a much better crop than the former; the quantity ſown was about ſeven Wincheſter buſhels per acre, and the produce about ſeventy Wincheſter buſhels per acre. I expect to have three crops of Oats before I lay on more manure; after which I intend to lay it down, and ſow it with graſs ſeed.

The utility of improving barren grounds has not only been found to fill the pockets of the owners, but at the ſame time to contribute much to the happineſs of the labourer, both with regard to conſtant employ, and as a ſure means to reduce the article of bread; ſo that a more general attention to this ſyſtem would ſilence the complaints of the poor about the dearneſs of proviſions, and the murmurs of the

farmers againſt heavy rates. Therefore it is my humble opinion that the labouring people could not be better employed, to univerſal advantage, than in the improvement and cultivation of Barren Land.

To extend this plan of improvement to all the Waſte, called Commons, is a taſk almoſt impoſſible in theſe northern counties, where we have ſo large a proportion of rocks and mountains; for I ſuppoſe two thirds of the land in Weſtmorland lies either in a neglected ſtate, or is incapable of cultivation. The attempt would be fruitleſs; and in fact the preſent ſtate of the country affords an ample field for improvement on a more contracted and profitable ſcale; ſeeing we have ſo many thouſand acres already incloſed, and lying ſtill in their original condition, growing in great meaſure nothing but heath or ling, and a kind of turf or peat underneath, which indeed ſerves for fuel: and ſhould a more general ſpirit of improvement pervade the inhabitants of this part, ſuch land might moſtly be growing fine graſs, or waving with corn;

but in remote parts of the country, improvement generally makes the ſloweſt progreſs.

I ſhall conclude this letter by obſerving that, though there be nothing new in the proceſs I have uſed, yet as the ſtatements are facts, it will be adding a few more to the general ſtock of knowledge; and if the above be deemed worth your notice, or tend in the leaſt, in this or any other part of the country, to induce others to follow the example, my end will be gained.

I am, SIR,

Your very humble ſervant,

JAMES TODD.

Langdale,
near Orton, Weſtmorland,
30 *Dec.* 1796.

The

The following is an Eſtimate of the Expences and Produce of one Statute Acre.

	£.	s.	d.		£.	s.	d.
Paring and burning per acre	0	15	0	Value of the turnep crop	3	0	0
Ploughing for turneps	0	5	6	The turneps were not hoed.			
30 buſhels of lime	1	10	0				
Turnep ſeed	0	2	0				
	2	12	6				
Ploughing for oats per acre	0	6	0	Value of the crop of oats	9	0	0
Seed	1	3	0	Straw	2	0	0
Harrowing	0	2	0		11	0	0
Shearing	0	7	6	Turneps	3	0	0
Threſhing	0	10	0		14	0	0
Total expence for oats	2	8	6	Expences	5	1	0
	2	12	6	Net produce	8	19	0
Total expence	5	1	0				

P. S. The above calculation of wages you may think low; but I could have one hundred acres cultivated for the ſame price, and, I may add, lower.

The

The following Accounts of DRAINING LAND having been this Seſſion received from Mr. JOSEPH HOSKINS, of High, near Cockermouth, and Mr. CHARLES UPTON, of Derby; the GOLD MEDAL, or THIRTY GUINEAS, being the Premium offered, was adjudged to Mr. HOSKINS, he having made the largeſt quantity of Drains: but, in conſequence of the merit of the Claim by Mr. UPTON, the Society voted to him their SILVER MEDAL. Mr. HOSKINS made choice of the Pecuniary Reward. The Account ſent by Mr. HOSKINS was accompanied by a rough Plan of the Land Drained, which Plan is reſerved in the Society's collection for the inſpection of the Public; and on this Plan the Stone Drains, amounting to eight thouſand eight hundred and forty-eight yards, with their inclinations, are ſhewn by dotted lines.

SIR,

SIR,

I MUST requeſt the favour of you to lay before the Society for the Encouragement of Arts, Manufactures, and Commerce, the following Account and Certificates, in claim of the Premium offered for Draining Land; and I need only at preſent obſerve, that all the fields lie on an even eaſy deſcent from the head Drain, and diſcharge into the river, from the two ditches, more water than would ſerve a mill-wheel, ſo that the quantity is paſt my calculation.

The ſprings at the head burſt from hard gravel on a ſtrong clay bottom, and the bottom of the drains throughout: at two feet deep is a cold hard clay, or a mixture of cinder, with good ſtrong loam above. Before draining, the fields were ſo wet and cold as to ſhew nothing but ſprits, or ſhort ſour graſs; and the whole eſtate, of near eighty acres, was let at twenty-five pounds a year.

a year. Being now made perfectly dry, and fit for any improvement, it cannot be worth leſs, though in a cold country, than fifty pounds a year. But, as I wiſh to make a fair trial of it, the following experiments will be made this year: the two fields neareſt the houſe to be ploughed for oats; two others to be pared and burnt, with common hay-ſeeds ſown upon ſcaled aſhes; and the two remaining fields to be covered with compoſt, green ſide up: this, it is thought, will be giving a complete trial to the eſtate, which, from its remote ſituation, is only fit for a ſtock farm.

The coſt of draining, every thing included, was about two pence-per yard; and the number of acres upon the two eſtates which have been cleared of water, about ſixty. The drains are at various diſtances, according to the neceſſity and wetneſs; and the dotted lines only ſhew the inclination of them, but not the number, which would have made too much confuſion, unleſs upon the largeſt paper.

Hoping

Hoping that what was neceſſary has been explained, the account is cloſed by,

SIR,

Your reſpectful and obedient
humble ſervant,

JOS. HOSKINS.

High, Feb. 7, 1797.

Mr. MORE.

I HEREBY certify, that myſelf and the men under me have made in the grounds of Joſ. Hoſkins, Eſq. during the year 1796, eight thouſand eight hundred and forty-eight yards of ſubſtantial ſtone walled and covered drains, ſix inches wide of clear run for the water. Given under my hand, this ſeventh day of February, 1797.

JAMES IRWIN.

The above is a true account, given in by the Drainer; and Mr. Hoſkins's grounds, which were extremely wet, are now quite dry.

WM. SEWELL,
Curate of Setmurthy.

Feb. 7, 1797.

With

With the following Paper of CHARLES UPTON, Eſq. two Sketches were received; the one, of Brailsford Common; the other, of Culland Moor: but, as the formation of Drains muſt neceſſarily vary with the nature, declination, and other circumſtances of the land, it has not been judged neceſſary to give, in this Volume, any Prints of theſe Sketches. The ſeveral References in this Paper allude to the Sketches themſelves; and any perſons may have an opportunity of conſulting the Originals, by applying to the Regiſter, at the Society's Houſe, for that purpoſe.

SIR,

I HOPE you will be pleaſed to excuſe my requeſting the favour of you to lay the incloſed Papers before the Society, and of my

my deſiring you to acknowledge the receipt of them.

I am, SIR,

Your obedient humble ſervant,

CHARLES UPTON.

Derby,
Jan. 26, 1797.

Mr. MORE.

THE Paper No. I. is a ſketch of Brailsford Common, and of the lines of the ſeveral open Stone Soughs made thereon. That part of this Common, deſcribed by marks O, was an entire bog, on which neither horſe nor cow could paſs with ſafety; and the whole of the boggy part is a peat moſs ſoil, of about three feet thick, and then a ſtrong marl.

The eaſtwardly branch of the Sough, No. I, was ſet out, in hopes of croſſing the water meaſures. The workman durſt not go nearer to the ſpring, letter A, than the diſtance of two yards, for fear of there being no ſafe foundation for his Sough, which, at that

that place, the fall allowed to be ſeven feet deep; but no water-meaſure could be met with, and the Sough had no effect whatever on the ſpring. The boring-iron was uſed at this place, and about ſeven feet below the bottom of the Sough, making fourteen feet from the ſurface; the water-meaſure was pricked, which immediately ſunk the ſpring; the Sough was continued to letter B, and the boring-iron uſed every two yards; but no water-meaſure was cut.

The weſtwardly branch was ſet out through land not boggy; but water roſe in the higheſt part, which ſpread itſelf, and did conſiderable injury. This Sough was ten feet deep at the end, and a water-meaſure was cut at letter H, at about ſeven feet; but the meaſure did not riſe, as the ſurface does: the boring-iron was uſed, and another water-meaſure, at about five feet below the bottom of the Sough, was pricked, and water roſe. Five acres deſcribed, as Lot 1, are laid dry, by this Sough; and that land has been ſince ploughed, limed, and is ſown with wheat,

and the crop is very promiſing. This lot of land, conſidered as incloſed, but not ſoughed, was worth about twelve ſhillings per acre, and it is now worth twenty ſhillings. The mouth of the Sough No. 1 was contrived to leave a good watering to part of the Common, when divided into two cloſes; but, as the loweſt part of Lot 2 ſhowed ſymptoms of being cold ground, and which, it is apprehended, muſt always be the caſe when water-meaſures cannot be cut, as the boring-iron cannot poſſibly get up the whole of the water below, and the ſame muſt lie or preſs upon the loweſt land within the influence of the obſtruction of that particular ſtratum—to remove that bad effect, and alſo to carry two other good waterings to two other intended cloſes, part of this Common, the Sough No. 2 was made, and with ſucceſs. The weſtwardly branch of the Sough No. 1, and the Sough No. 2, have laid ſix acres dry, deſcribed upon the Sketch, as Lot 2. The ſtratum of the earth through which the two branches were made, is a ſtrong marl; that of No. 2 is a peat ſoil,

upon gravel: the quantity of water which paſſes through theſe Soughs would fill more than a two-inch bore.

The Sough No. 3 was then ſet out, which paſſes as much water as will fill a three-inch bore: this Sough, with the two ſpurs, have laid the remainder of that ſide of the Common, being eleven acres, perfectly dry; and alſo the old incloſed lands (containing about twenty-five acres) adjoining, and a well, of about three feet in circumference, which conſtantly was full of water, and ſituated above four hundred yards from any of the Soughs, and which was a regular ſpring, running over at the loweſt edge, is alſo laid perfectly dry.

This remainder is deſcribed, as Lot 3. Lots 2 and 3 were not worth a ſhilling per acre to rent; and it is expected that, upon an average, they will be worth fifteen ſhillings per acre, when incloſed: it is alſo expected that the whole will, in the year 1797, be in a ſtate of cultivation; part thereof is already ploughed and limed; and oats, turneps, and cabbages, will be the produce.

The

The twenty-five acres of ancient incloſed land is alſo eſſentially improved in value.

Sough No. 4.—The water-meaſure was met with at letter B, at about ſeven feet deep; and the man continued to work in the water-meaſure to letter C, at ten feet deep: but the ſurface of the land riſing much faſter than the water-meaſure, and the depth being ſo conſiderable, and as the Sough had already laid the boggy land, deſcribed as Lot 4, dry to the water-courſe, it was thought adviſeable to raiſe the bottom of the Sough three feet, and to continue it, on account of water riſing to the ſurface, at D; and the Sough was continued to D, at ſeven feet in depth, and was ſucceſsful. This Sough runs more water than would fill a one-inch bore. Ten acres of land are laid dry by this Sough.

Sough No. 5.—The water-meaſure was met with at letter E, at about ſeven feet deep, continued to f f; and this Sough laid the boggy land, deſcribed as Lot 5, dry; and the Sough runs near the quantity of an

inch-bore. Two acres of land are laid dry by this Sough.

Sough No. 6.—The water-meaſure was met at letter G, at about ſeven feet deep, and laid the boggy land, deſcribed at Lot 6, dry; and the men were working in this Sough on the 31ſt of December, 1796. This Sough paſſes nearly the quantity of a two-inch bore. Three acres were laid dry on the 31ſt of December.

The land on the ſouthwardly ſide the water-courſe, in which the ſprings O were, (containing about fourteen acres) was not worth one ſhilling per acre; and it is now expected to make good meadow land, as it can be eaſily flooded, and will be of the annual value of twenty ſhillings per acre, now incloſed.

The higher, or ſouthwardly part ſoughed, of this ſide the Common, was covered with furze, and was not worth more than two ſhillings per acre: it is now ploughed, and part limed, on which a good crop of oats is expected; and that part not already limed is to be fallowed for turneps. This land is

expected

expected to be of the annual value of twenty ſhillings per acre, now incloſed.

The whole contents of theſe Soughs are 1,937 yards: a load of ſtone has finiſhed eleven yards; conſequently 177 loads have been uſed.

Land laid dry.		Acres.	177 loads, at 1s. per	£.	s.	d.
Sough	1	5	load getting	8	17	0
	2	6	177 loads, at 2s. 3d.			
	3	11	per load carry-			
	4	10	ing	19	8	3
	5	2	Paid workmen	71	9	6
	6	3				
Old Incloſures		25		99	14	9
		62				

The Soughs are made by contract; and the prices are:—

Depth. Feet.		Per rood of 7 yards. s.	d.
4	good ground	1	8
	bad ground	2	0
5		3	0
6		5	0
7		6	0
8		6	10
9		7	0
10		8	0

And when the ſides have been very difficult to ſupport, 10s. per rood has been allowed.

The Paper No. 2 is a ſketch of Culland Moor, and ſome land adjoining. The moor, and the cloſe below it, to the water-courſe, was very much injured by water, which aroſe through the pores of the earth in every part, ſeemingly alike, without any particular ſpring, and without the land being boggy; but a conſtant water ſpread itſelf over the ſurface, and the graſs was ſour, and of a marſhy kind, and of little or no value.

The moor cloſes alſo, mentioned in No. 2, have, for ſome years, been in tillage; and they lie, with a regular aſcent, ſix feet higher than either Culland Moor, or the Peat Moſs, alſo mentioned in the Sketch. Theſe cloſes were injured by water, which ſhewed itſelf in the higheſt parts of the land.

The Wheat Piece, alſo mentioned in the Sketch No. 2, has, for ſome years, been in tillage, and is riſing land from Culland Moor; and it was injured by water, which ſhowed itſelf in the higheſt parts of the cloſe; and water alſo ſhowed itſelf in the higheſt parts of the clover cloſe; and the mea-

meadows below, all mentioned in the Sketch No. 2, were greatly damaged by water riſing to the ſurface, much as on Culland Moor, but not ſo ſtrong.

Sough No. 1.—The water-meaſure was found at letter A, at ſeven feet deep, in a running quick ſand, which was ſo looſe, that the firſt workman employed durſt not proceed, being fearful he could not lay a foundation to carry the ſtone Sough; and, beſides, the ſand poured ſo faſt upon him, that the Sough he had made filled up: the maſter workman then undertook the Sough, and, by throwing conſiderable quantities of ſtone into the quick ſand, was enabled to make a good Sough; and the water-meaſure continued as long as the fall of the Sough would allow it to be worked in the ſand, which was to letter B, at nine feet deep. The water-meaſure was then loſt, and the Sough was carried forward, in a hard dry gravel, to letter C, at about ten feet deep, and water was raiſed by boring. The water, when firſt met with, was conſiderable; but it has ſince very much abated,

though the Sough conſtantly runs: the ſprings, however, have been very low, almoſt ever ſince the Sough was made. The waters manifeſtly deſcend from the higher lands, which lie northwardly, and in which there is ſtone.

The line No. 1 was ſet out with an intention of cutting the water-meaſure, and thereby preventing any water paſſing under the Sough to the lower lands; but all hopes, as to this large ſcheme, were loſt, the inſtant it was aſcertained that the water-meaſure dipped, from eaſt to weſt, from letter B.

The cloſe adjoining the Sough No. 1, on the northwardly ſide, containing about four acres, is a light ſoil, and carried a great burthen of clover in the year 1796; and, though a little injured with water before the Sough was made, was always, with good management, capable of carrying good crops of barley, oats, turneps, and clover: the meadows on the ſouthwardly ſide and ſouth-eaſtwardly direction, containing about ten acres, were much damaged by water; they

now

now appear dry, and may reaſonably be ſtated to be worth five ſhillings per acre more to rent than they were: they were, before the Sough was made, worth about twenty ſhillings per acre.

Sough No. 2.—The water-meaſure was found at letter D, at ſeven feet deep in gravel, and continued to letter E, at about nine feet, where it was loſt, and the Sough was carried forwards to *f f*, in a ſtrong marl; the quality of the cloſe is a loamy ſoil, and gets to a ſtrong marl at about twelve inches deep; all the land in this cloſe, which is about five acres, above the Sough is laid dry, and below from the mouth of the Sough to letter E: but water riſes below the Sough, between E and *f f*, and it is propoſed to relieve this inconvenience, by continuing the Sough No. 3, into this cloſe. Three acres of this cloſe may reaſonably be ſtated to be worth five ſhillings per acre more than it was before the Sough was made; it was previouſly worth twenty-two ſhillings per acre.

Sough No. 3.—Early in the year 1795, two fences were made on Culland Moor, and ſloped drains on the northwardly ſides, of four feet in depth, to ſave expence of poſts and rails; and there were ſix holes bored in each drain, about one foot in gravel, and then marl at ſix feet (making ten feet from the ſurface): the water was pricked, and a conſiderable quantity iſſued from each hole. No eſſential benefit in the year 1795 could be perceived from theſe drains and holes; and therefore the Sough No. 3 was ordered to be made in the ſpring of 1796: the water-meaſure was found at letter G, at about nine feet deep, and continued to letter H, at about eleven feet; through the whole of this Sough, gravel was found at two feet deep, which was about three feet thick, but no water-meaſure in it; a ſtrong clay was then found, of about three feet thick, and then gravel, in which the water was found: this Sough runs as much water as will paſs a three-inch bore.

Culland

Culland Moor is perfectly dry, except about an acre at letter K: nine of the twelve holes in the two drains are dry, but three holes below letter I, ſtill continue to iſſue water. A ſhort Sough from the brook at or near K, muſt be made to remove theſe inconveniences.

Culland Moor lies on the eaſtwardly ſide of the three moor cloſes, containing about four acres each; and the Peat Moſs, drained in 1795, lies on the weſtwardly ſide thereof. When the Sough was made in the Peat Moſs, a part of the moor cloſes next the Peat Moſs became dry; and ſince the Sough No. 3 was made, the whole of them are perfectly dry: they are worth four ſhillings per acre more than they were; they were worth before about twenty ſhillings. The cloſe of three acres, from the mouth of the Sough to letter G, is worth eight ſhillings per acre more than it was; and Culland Moor, about ten acres, is ſuppoſed to be worth fifteen ſhillings per acre, which before was not worth four ſhillings per acre.

Land

	Acres				
Land laid dry, Culland-Moor	11	891 yards ſoughing, 78 loads of ſtone uſed.			
Cloſe to letter G	3	Stone-getting	£.3	18	0
Clover Cloſe & Meadows	14	Carriage, being near the pit	3	18	0
Wheat Cloſe	3	Paid workmen	25	13	4
Half of Moor Cloſe	6				
	37		£.33	9	4

The rough ſketch you have herewith, delineates a Sough laid through a valley of about twenty-five acres of boggy land; the adjoining grounds riſe very conſiderably both on the north and ſouth. The water-meaſure was cut at letter A, at about ſeven feet deep, and found in gravel which continued to B, perfectly draining the land in the valley on each ſide the Sough from B to C: the gravel was lower than the Sough, and the boring-iron was uſed, through a ſtrong marl; and the water was found at about four feet deep in gravel, which roſe plentifully. The whole Sough was bored every two yards, as deſcribed in the firſt Certificate, and water was found in ſand under the gravel, at about four feet deep; the level was kept through the marl, without any water but what was got by boring: the gravel meaſure riſing, it was cut at letter C, when

when the water was again found, iſſuing from each ſide, and continued to the end of the Sough; and the valley is laid dry, except two roods, which appears to be occaſioned, notwithſtanding the boring-iron was frequently uſed, by the water-meaſure being loſt between B and C.

Sough D was made to lay a cloſe adjoining the valley dry, which ſucceeded at ſeven feet deep.

The long Sough paſſes as much water as would fill a four-inch bore; the boggy part of this valley, containing about twelve acres, is peat ſoil, the other part a red marl: the boggy land was not worth any thing, the wet land from eight to ten ſhillings per acre. The whole will become a well-watered meadow, and is expected to be well worth eighty ſhillings per acre, when the neceſſary flood gates and flooding-drains are made.

Valley, 25 acres. 1099 yards ſoughing. Stone uſed, 100 loads.

Stone getting	£.5	0	0
Carriage, being near the pit	5	0	0
Paid workmen	55	17	4
	£. 65	17	4

The one hundred and four roods of ſtone Soughs, made by Joſeph Slater, in Mr. Burton's lands, are exactly of the like deſcription, and at the ſame expence, and about the ſame quantity of land is cured as the laſt deſcribed: a four-inch bore would not paſs the wate-rfound; and a particular deſcription thereof would only be a repetition, as the water-meaſure was in general found in gravel; but much boring was uſed, and, in places where the gravel lay below the Sough, there appear deficiencies near the edge of the brook. This twenty-five acres of land were worth about ſeven ſhillings per acre, and is expected to be worth twenty ſhillings: the whole will be pared and burned this ſpring; ſome part will be planted with cabbages, other part will be ſown with turneps, and the remainder with graſs ſeeds.

There are many other ſtone Soughs, as certified, made by Joſeph Slater, a particular deſcription of which cannot well be made, as they are numerous, and the object of each applied to the ſprings in each particular

ticular cloſe: all the Soughs are ſix inches wide within.

GEORGE GOODWIN, Churchwarden.
WM. COX.
EDWARD L. COX, and others.

Feb. 10, 1797.

Mr. MORE.

WE, the Miniſter, Churchwardens, and ſeveral of the principal inhabitants of the pariſh of Brailsford, in the county of Derby, do hereby certify, that the ſeveral Soughs, executed by Joſeph Slater, James Gorſe, Godfrey Newton, and William Marſin, and their aſſiſtants, for Mr. Upton, are open ſtone Soughs; and that, having frequently ſeen them during the execution, we believe the meaſure to be 6,093 ½ yards, as certified by them, to be correct; and that the depths of the ſaid Soughs were from ſix to twelve feet, ſeveral of which run as much water as will fill a three-inch bore: and that a quantity of

land, not leſs than one hundred and fifty acres, has been drained by ſuch Soughs, which, before, was of very little value, as a conſiderable part could not be paſſed over in ſafety by horſe or cow.

From the improvements already made, it is preſumed the whole will be in a good ſtate of cultivation in the year 1797, ſeveral acres being already ſown with wheat; ſome being limed, and ready for oats in the ſpring; a conſiderable part preparing for cabbages, turneps, and cole; and the remainder is intended to be pared and burned, and left for graſs. There is a great depth of peat ſoil, where the paring and burning is to take place.

Mr. Upton directs the water-meaſures to be cut, where the fall will allow it; but in many places the meaſures have lain from one to eight feet deep, below the Sough: in this caſe, where the ſtrata of earth would admit it, the boring-iron was uſed; but, as the men in general worked in a very hard gravel, Mr. Upton gave orders for a ſtrong pile, about three inches diameter, well ſhod with

with iron, to be driven to the water-meaſure, which was afterwards got up by a lever; and abundance of water was by this means raiſed; a hole which, in the uſual mode of boring, would have taken hours, was thus made in ten minutes; and they were made every two yards, where boring was neceſſary.

In the year 1795 Mr. Upton laid nearly the ſame quantity of open ſtone Soughs; and, upon a piece of peat bog, of ten acres, drained in 1795, which was not worth four ſhillings per acre to rent, a crop of cabbage, turneps, and cole, worth ſix pounds per acre, was grown in the year 1796, being cultivated, after draining, by William Cox, Eſq. of Brailsford.

Mr. Upton has alſo, in the year 1796, incloſed and improved upwards of 100 acres of Waſte Land, in the pariſh of Brailsford.

J. L. WITHERALL, Miniſter.
GEORGE GOODWIN, Churchwarden.
WILLIAM COX, and others.

The Society having received the ſeveral Certificates, hereunto annexed, of the uſe of an Inſtrument, invented by Mr. ADAM SCOTT, and called by him a Mole Plough, made ſeveral experiments; and, being convinced of its utility for making under-ground Drains, voted to the Inventor a bounty of THIRTY GUINEAS, on condition of the Plough being left with the Society for the uſe of the Public.

SIR,

I MUST beg of you to lay the Mole Plough, which you will receive with this, before the Society for the Encouragement of Arts, Manufactures, and Commerce. It has been uſed in Sutton Park, for John Webbe Weſton, Eſq. theſe three years paſt, and is found to anſwer every purpoſe of under-ground draining,

draining, without breaking the ſurface any more than a thin coulter being drawn along, which mark diſappears in a few days. A man and a boy, with four horſes, may drain thirty acres in a day, provided there is an open gripe or ditch cut at the lower ſide of the ground to be thus drained, in order to receive the water from thoſe ſmall cavities which the Plough forms in the ground, at the depth of twelve inches, or more. The method of uſing it is, to go down and up, at the diſtance of fifteen, twenty, or thirty feet, as the land may require: this alludes to graſs land; but it is equally good in turnep ground, where it is too wet for the ſheep to feed them off, or on any land that is too wet to ſow; either of which evils it will remedy in a very ſhort time, provided there is ſome declivity in the ground. The beſt time for this operation, in graſs land, is in October or November, when the land has received moiſture enough for the plough to work, and not ſo much as to injure the land, or render it ſoft. Theſe aſſertions will be certified

by the Rev. Mr. Knapp; or, if neceſſary, by Mr. Weſton himſelf.

I am, SIR,

With reſpect,

Your very humble ſervant,

ADAM SCOTT.

Mr. MORE.

SIR,

YOUR letter of the 1ſt would have been ſooner anſwered, but that I did not receive it till my return from Bath, on the 5th inſtant.

With reſpect to the Mole Plough, I really think too much cannot be ſaid in its commendation, for the purpoſe of temporary draining, where ſuch is uſeful, as is the caſe with great part of my land laid down to graſs, it being on a declivity, and is too wet, only in the autumn and winter, after great falls of rain or ſnow. It being free from land ſprings, I conceived it improper

to

be underdrained in the uſual way, as thereby the moiſture neceſſary for its producing a crop of graſs would be carried off equally at all ſeaſons.

The ſoil is very light, but not ſandy, to the depth of from nine to eighteen inches, or more; and underneath is a ſtrong clay, which renders the ſurface abſolutely poachy in winter: but, from the uſe of this inſtrument, the ground on which a man could not walk, will, in the courſe of forty-eight hours, be enabled to carry any cattle. From ten to twenty acres may eaſily be drained in one day, by a ſingle team, which makes the expence trifling, though it ſhould be neceſſary to be done every year.

The drains made by the Plough ſhould be in direct lines, at from ten to twenty feet apart, and all vent themſelves into an open furrow, or gripe, at the bottom. I have uſed this machine for four ſeaſons paſt, and with great ſucceſs. The price of the Plough, complete, is about two guineas.

The Plough, to the beſt of my know-

ledge, is the ſole invention of my ſteward, Adam Scott, whoſe ingenuity on this and many other occaſions deſerve every encouragement.

If you ſhould wiſh for any further information, either now or in future, it will very readily be given to the Society, by,

SIR,

Your very humble ſervant,

JOHN WEBBE WESTON.

Sutton Place,
December 9, 1795.

Mr. MORE.

SIR,

MR. Scott's Mole Plough is ſo contrived, that it makes the drains from one foot to eighteen inches deep; the bore, two inches and an half diameter; the ſoil, rather a ſtiff clay. I made uſe of ſix horſes, but am inclined to think, from the eaſe with which they worked it, that four would be fully ſufficient. I ſhall have, next ſeaſon, a better

a better opportunity of coming to a certainty on the ſubject; ſhould you wiſh for farther information, I ſhall then be happy to communicate what may have occured.—I apprehend this Plough can only anſwer in ſuch ſoils where it is not likely to meet with any material obſtruction; in mine I flatter myſelf I ſhall find much benefit reſult from its uſe.

I am, SIR,

Your very humble ſervant,

EDMUND BOEHM.

Burwood Park,
March 20, 1796.

Mr. MORE.

SIR,

AGREEABLY to the wiſhes of the Committee of Agriculture, I am now to requeſt you will lay before them the further trials I have made with, and obſervations on, Mr. Scott's Mole Plough.

On the 1ſt of this month, on light land, my drain fourteen inches deep, I worked the Plough, without difficulty, with two oxen and three horſes; but, in the ſtrong clays, found it work enough for four horſes and two oxen, although I reduced my depth two inches. The drains I have drawn on low wet lands and clay, run inſtantly after the Plough: on theſe lands I have generally drawn the drains about twenty feet aſunder, and find them much firmer and dryer. I conceive that, except in very heavy land, four oxen would be ſufficient, and fully equal to two oxen and three horſes, as the former ſtop, and conſequently draw much better together.

The Mole Plough, in my opinion, fully anſwers the intent in ſuch lands as it can properly work in, my only objection being to the ſtrength required to work it, which makes it impracticable where a large team is not kept.

It may be worthy remark, that the laſt year's drains, which were in clay, are as entire,

entire, and run as freely, as at the firſt moment they were made.

I am, SIR,

Your obedient humble ſervant,

EDMUND BOEHM.

Otterſhaw Park,
February, 12, 1797.

Mr. MORE.

Deſcription of the Wood-Cut of Mr. ADAM SCOTT'*s Mole Plough.*

a. The handle, for only one is uſed, mortiſed into the beam, at *b*.

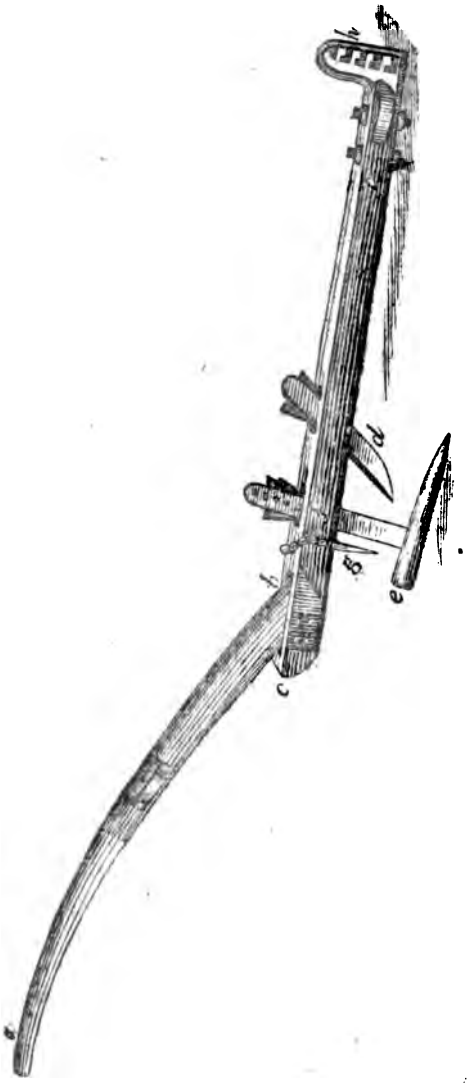
c c. The beam.

d. The coulter, held faſt, in the uſual manner, by wedges.

e. The cone or mole, of caſt iron, having an upright piece of bar iron, faſtened to it, which, paſſing through the beam at *f*, is tightened by wedges; and the pin (*g*), being put through one of the holes in the upright bar, ſerves to regulate the depth of the cavity below the ſurface of the land.

h. The copſe, by which the cattle draw.

Mr. Adam Scott's Mole Plough.



PAPER

IN

CHEMISTRY.

CHEMISTRY.

During the time that Wheat, from which Starch is uſually manufactured, was at a high price in the year 1796, the Society, in order to ſave as much as poſſible of that Grain for the purpoſe of Bread, offered a Premium of the GOLD MEDAL or THIRTY GUINEAS, for diſcovering a method of manufacturing Starch from materials not uſed as food for man; and this Seſſion a Claim was made for that Premium by Mrs. JANE GIBBS, of Portland, from whom the following Papers, and a proper quantity of the Starch, were received; and notwithſtanding that, from the high price of the root of the Arum Maculatum, it can hardly become an article of commerce or of general uſe, yet, according to the terms of the Society's Advertiſement, and to induce ingenious

ingenious perſons to diſcover and impart to the Public, the knowledge of any new materials to be employed, to uſeful purpoſes, in manufactures, the Premium was adjudged to this Candidate: and a ſample of the Starch is reſerved in the Society's collection, as prepared by Mrs. GIBBS, from whom the following Account was received.

SIR,

IN conſequence of your letter, I have made enquiry concerning the quantity of roots of the plant from which my Starch has been prepared, neceſſary for the making a given quantity of Starch; but do not find any of the roots have been weighed, ſo that I cannot aſcertain what proportion of Starch is yielded by them. It is believed a peck of the roots will make about four pounds of Starch, though, in the operation, a leſs quantity is obtained from ſome roots than from others; the Starch is ſold at about

eleven pence a pound: the plant from which it is prepared is here called Lords and Ladies *(Arum Vulgare Maculatum)*; the roots are found in the common fields, and being cleanſed, and pounded in a ſtone mortar with water, the whole is then ſtrained, and, after ſettling, the water being poured off, the Starch remains at the bottom, which when dried becomes a fine powder. It may be adviſeable, during the preparing Starch from the roots of this plant, to be careful in handling them, leſt their acrid quality may injure the hands.

The two hundred weight of Starch I have prepared, as mentioned in the Certificate, is equal to the ſample now ſent.

I am

Your humble ſervant,

JANE GIBBS.

Portland Arms,
Portland, Dorſetſhire,
January 2, 1797.

Mr. MORE.

This

THIS is to certify, that Jane Gibbs, of the Iſle of Portland, has in her poſſeſſion two hundred weight of Starch made from roots dug in the common field, which roots are not the food of man; and the ſaid Jane Gibbs will produce any quantity of the Starch, whenever required: the ſaid roots were dug, and the Starch made, in the preſent year.

J. PAYNE, Rector.
WILLIAM PEARCE, } Churchwardens.
EDWARD PEARCE, }

Portland,
Dec. 22, 1796.

PAPER

IN

POLITE ARTS.

POLITE ARTS.

Mr. ROBERT SALMON, of Woburn, in Bedfordſhire, having this Seſſion produced to the Society two PICTURES, transferred by him from Pannels to Canvaſs, and one, transferred in the ſame manner, from a Plaſter Wall; and having alſo communicated his manner of performing the work, as inſerted in the following Papers; the GREATER SILVER PALLET was voted to him for theſe communications. And here it may be proper to obſerve, that, ſhould any ingenious perſons practiſe the art here deſcribed, it will be highly ſatisfactory to the Society to be informed of the ſucceſs attending their labours.

SIR,

BEING aſſured of the readineſs of the Society for the Encouragement of Arts, Manufactures, and Commerce, to attend to

every propoſition of uſeful invention or improvement, and conceiving that a method of preſerving the works of thoſe who have at any time contributed to thoſe improvements may be deſirable, induces me to lay before them the account of an art, which, from every enquiry I have been able to make, I am inclined to think new: ſhould it not be found ſo, I hope this communication will be conſidered as an attempt to that end, and that it may not be unacceptable to the Society.

The art I mean is, that of transferring paintings from one ſubſtance to another, without defacing or injuring the ſame; by which means any old and valuable Pictures, painted on boards, plaſter ceilings, or walls, may be transferred from thoſe ſubſtances, and placed on canvaſs and ſtraining frames, ſo as to be equally ſound and durable as if originally painted thereon, and thereby rendered more perfect than they are generally found on decayed and broken boards, ceilings, walls, or ſuch other ſubſtances, that it may be requiſite to transfer them from.

By this art any paintings on the ceilings, walls, or wainſcots of old buildings, however large, on curved or ſtrait ſurfaces, and of whatſoever ſhape, may be preſerved from ruin, and handed down to poſterity, when otherwiſe they would be loſt.

Such is the ſubſtance of my invention, which, after many trials, I have, by my own experience, ſucceſsfully put in practice; and, ſhould ſpecimens of transferred paintings appear worthy the notice of the Society, I ſhall, on your requeſt, readily ſubmit ſome of the ſame to their inſpection; and, not having any intention of taking out a patent for the ſame, ſhould it be thought an acquiſition worthy any reward, I ſhall, with pleaſure, lay the whole of the proceſs before the Society, whenever requeſted. Flattering myſelf with the favour of an anſwer,

I am, SIR,

Your obedient humble ſervant,

ROBERT SALMON,
Clerk of the Works to his Grace the Duke of Bedford.

Woburn Abbey,
Dec. 5, 1796.

Mr. MORE.

SIR,

AGREEABLY to the wiſh of the Society, I have ſent, per the Woburn coach, a caſe, directed for you, containing two of my transferred paintings; and, in order to explain their preſent ſtate, I beg leave to lay before the Society the following particulars.—The portrait of Queen Elizabeth was, at the time it came to my hands, on an oak board, broken in four pieces, and lodged together at the back; the other Picture, now on canvaſs, was from a plaſter cove of a ceiling of a ſtair-caſe, at Houghton-houſe, near Ampthill, formerly the reſidence of the Marquis of Taviſtock.

I am, SIR,

Your humble ſervant,

ROBERT SALMON.

Woburn,
Dec. 12, 1796.

MR. MORE.

Mr.

Mr. ROBERT SALMON's *Method and Proceſs for transferring* PAINTINGS.

The firſt thing to be attended to, either for paintings on plaſter walls or ceilings, or from boards, is, that the place in which they are be ſecure from wet or damp. If the paintings are on old walls, in large buildings, and places where this cannot be attained by art, then the ſummer ſeaſon ſhould be taken for the purpoſe, as the Picture would rarely eſcape damage if the wet or damp gets at it, while under the proceſs; at the ſame time caution ſhould be taken that the room or place be not overheated, which would alſo produce equally bad effects: theſe precautions taken, the next thing is to examine the face of the painting. If there are any holes in the ſame, they muſt be carefully filled up with paſte, or putty of glue and whiting: this, if the holes are large, ſhould be twice or thrice done, ſo as entirely to fill up and leave the face even and ſmooth; but if there are any bruiſed

places, with paint ſtill remaining on the face of the bruiſed parts, then this ſtopping muſt not be applied, but the ſecuring canvaſs, hereafter deſcribed, be preſſed down into theſe places. In the places that are ſtopped, there will of courſe appear blemiſhes when the Picture is transferred; but the proceſs is rendered much more certain and ſure by being ſo done. Attention muſt next be paid, to lay down any bliſters, or places where the paint is leaving the ground: this is done by introducing, between the paint and the ground, ſome very ſtrong paſte of flour and water; and the face of the bliſtered paint being damped with a wet ſponge or pencil, it may then be preſſed with the hand home to the ground, to which it will then adhere: all the unſound places being thus ſecured, care muſt be taken to clear the face of any greaſe or dirt, as alſo of any particles of the paſte that may happen to be left on the ſurface. The next thing is, to determine the ſize of the painting meant to be taken off; and if on a plain ſurface, a board of the ſize of the picture muſt be procured, of not leſs than

than an inch in thickneſs, and framed together with well-ſeaſoned wood, in ſmall pannels, ſmooth, and fluſh on one ſide: this done, a piece of fine open canvaſs muſt be provided, ſuch as the fineſt ſort uſed for hanging paper on: this canvaſs to be made ſomewhat larger than the Picture, and ſo ſewed together, and the ſeam preſſed, that it be perfectly ſmooth and even. This is what I call the ſecuring-canvaſs, which, being ſo prepared, is then ſtuck on the face of the Picture with a paſte made of ſtrong beer, boiled till it is half reduced, and then mixed with a ſufficient quantity of flour to give it a very ſtrong conſiſtence. To large Pictures on walls or ceilings the canvaſs muſt for ſome time be preſſed, and rubbed with the hand as ſmooth as poſſible, working it from the middle to the outſide, ſo as to make it tolerably tight, and obſerving, as it dries, to preſs it with the hand or cloth into any hollow or bruiſed places, ſo that it may adhere to every part of the painting: this done, it is left to dry, which it will moſtly do in a day or two, when dry, a ſecond canvaſs,

of

of a ſtronger and cloſer ſort, and of the ſame ſize as the other, is in like manner to be attached on the top of the firſt. This laſt will want very little attention, as it will readily adhere to the firſt; and, being dry, attention muſt be paid to the face thereof, to take off any ſmall knots, or unevenneſs thereon; which done, the whole ſhould be again covered with a thin paſte of ſize and whiting; when dry, to be pumiced over, ſo as to make the whole perfectly ſmooth and even. The painting being thus ſecured, the board, already prepared to the ſize of the Picture, is to be put with the ſmooth ſide againſt the face thereof, ſo as exactly to cover as much as is intended to be transferred. The edges of the canvaſs, which, as before directed, are left larger than the painting, are then to be pulled tight over, and cloſely nailed to the edge of the board. If the painting be large, either on ceilings or walls, the board muſt, by proper ſupports, be firmly fixed againſt the Picture, ſo that it can readily be lowered down when the plaſter and painting is detached.

The

The canvaſs and board being fixed, the paintings from walls or ceilings are to be freed, together with a certain portion of the plaſtering: this, with proper care and attention, may be readily done. If on a ceiling, the firſt thing is to make ſome holes through the plaſtering round the outſide of the board and painting, and, with a ſmall ſaw, to ſaw the plaſtering from one hole to another, till the whole is diſunited from the other parts of the ceiling; this done, the workman muſt get at the upper ſide of the ceiling, where he muſt free the plaſtering from the laths, by breaking off the keys thereof, and, with a chiſſel, cut out the laths, whereby the plaſtering, together with the Picture, will be left reſting on the board and ſupports: if there be apartments over the ceiling, the readieſt way will be to take up a few of the floor boards above; if next the roof, means may always be found to get into the ſame; and, although at firſt this operation may appear difficult, yet it is preſumed no difficulty will be found by any ingenious workman.

If

If the painting is on a brick or ſtone wall, the ſame muſt be cut away at top, and down the ſides of the painting; and then, by means of chiſſels or ſaws in wood handles, of different lengths, the wall muſt be cut away quite behind the painting, leaving the ſame, together with the plaſtering, reſting on the board; this operation may ſometimes be done with a ſaw, or, if the wall be not thick, nor the other ſide of much conſequence, the bricks or ſtones may be taken out from that ſide, leaving the plaſtering and painting as before; this laſt method I have not practiſed; the other, of cutting away ſome part of the wall, I have, and ſee no difficulty, or very great labour in the operation; but that of courſe muſt be various, according to the texture of the wall and mortar.

If paintings are on curved ſurfaces, ſuch as the coves of ceilings, then the only difference of operation is, that ſome ribs of wood muſt be cut out and boarded ſmooth to the curve of the ſurface of the painting, and then fixed up thereto, in place of the

before

before deſcribed bearing board; the painting is then to be freed, and left with the plaſtering, reſting on the bearers.

For paintings painted on wainſcot or boards, the ſame ſecuring and proceſs is exactly followed, only that, as the wainſcot or board can always be cut to the ſize wanted, and laid horizontal, the ſecuring canvaſs is ſtretched thereon, and turned over the edges of the ſame, till it is dry; after which the edges are again turned up, and nailed to the board, in the ſame manner as thoſe from walls.

Having, as before deſcribed in any of the aforementioned caſes, freed the paintings from their original places, you have then got them ſecured to two thickneſſes of canvaſs, with their faces next and on to the board prepared for that purpoſe; which being the caſe, they can readily be removed to any room or ſhop to be finiſhed, as follows. Having got the painting into the ſhop or room, which ſhould be moderately warm and dry, but by no means overheated, laying the board on a bench or treſſels,

takes about two months; and the longer it is left, the more ſecure the painting will be attached to its canvaſs, and leſs liable to crack or fly therefrom. When ſufficiently dry, all the four canvaſses are to be unnailed from the board, and the edges turned up the reverſe way, and nailed to a proper ſtretching frame; this is done by unnailing from the board a part on each ſide at a time, and immediately nailing it to the ſtretching frame, ſo as never to leave the canvaſs to rack or partially ſtretch, which would damage the Picture; in this manner, by degrees, the cloths are entirely detached from the board, and firmly fixed on the ſtretching frame; the ſuperfluous canvaſs left larger than the frame, may then be cut off, and the wedges put in the frame, and moderately tightened up. There remains then only to clear the face of the painting from the ſecuring canvaſs, which is done by repeatedly waſhing the face with a ſponge and moderately warm water; in doing this, no violence or force muſt be uſed; with frequent and gentle waſhings the

the paſte will all be worked out with the ſponge: the edges of the outer canvaſs is then to be cut round, and ſtripped off, and the other next the face of the Picture is to be done in like manner; which done, there only remains to clear the paſte clean off, and repair any defects; and the Picture will be as ſtrong as if painted on the canvaſs.

For taking Pictures off walls, without taking the walls down, or cutting away more thereof than the plaſtering, the following proceſs is propoſed:—The face of the Picture to be firſt ſecured, in every reſpect, in the manner before deſcribed: inſtead of the plain board, a bearer ſhould be prepared, with a convex ſurface, compoſed of ribs, boarded over, ſo as to form part of a cylinder, of not leſs than five feet radius, and as long as the height of the Picture. This bearer being prepared, in order to apply it, a floor or platform ſhould be erected, and placed horizontally, with its ſurface level, and its edge immediately in contact with the bottom of the Picture meant to be transferred. The uſe of this platform is

for the above-deſcribed bearer to reſt and move upon; which bearer ſhould be ſet on its end, with one edge in contact with the wall, at one ſide of the Picture; conſequently the other edge will be at ſome diſtance from the wall, according to the ſize of the Picture and convexity of the bearer. Being thus placed, the ſuperfluous edge of the ſecuring canvaſs ſhould be turned over, and nailed to that edge of the bearer that is next the wall: this done, the operation of cutting away the plaſtering ſhould be begun, which may be done with the corner and end of a ſhort ſaw, by ſawing between the brick-work and plaſtering, leaving the thickneſs, or part of the thickneſs of the plaſtering, on to the painting, faſtened to the bearer; and when this edge of the Picture is freed, the whole height, for nine or ten inches under, the edge of the bearer that is furtheſt from the wall muſt then be gently forced nearer; conſequently the other edge, together with the painting and plaſter that is freed, will leave the wall, and give an opportunity of introducing the ſaw behind, and cutting away the

the ſame to a certain diſtance further under; and, by repeating this, the whole of the Picture will at laſt be freed, and left on the bearer: each time the bearer is removed, and, as it were, rolled on the vertical ſurface of the wall, care muſt be taken to turn and nail the ſecuring-canvaſs on the top and bottom edges of the bearer, ſo as to ſecure the freed plaſtering and Picture from moving about; and, laſtly, before the bearer and painting be moved, to nail the other edge of the Picture in the ſame way, which will ſecure the whole to the bearer: this done, the Picture and bearer are at liberty to be moved to a proper place, in order to be freed from the remaining plaſter; the edges may then be unnailed, and the painting and canvaſs ſlipped from this bearer on to a plain board, and the new canvaſs then put on, and remain till dry, as in other caſes.

It may appear that the bending of the canvaſs and plaſtering to the convex bearer will crack the plaſter, and damage the painting; but from experience I have obſerved that, to a curve of ſuch, or even leſs

radius, plaſtering will bend, without any viſible crack, even on the exterior part thereof; and that part next the bearer, not having occaſion in bending to extend its parts, will conſequently be much leſs liable to be diſturbed by ſuch bending.

Woburn,
March 27, 1797.

Mr. MORE.

SIR,

IN compliance with the requeſt of the Society, I am to inform them, that, in clearing the wood of the paintings, I have never made uſe of aquafortis, or any other liquid, the uſe of which I conceive would be very tedious, and attended with danger, leſt it ſhould get through the paint, and wet or damp the paſte, by which the ſecuring-canvaſs is fixed; the conſequence of which I have by accident experienced, and find that ſuch places, ſo wetted, have been blemiſhed. In working off the wood, I have moſtly

made uſe of planes alone, the management of which requires ſome dexterity, but would ſoon be obtained with care and practice. The ſort of planes I have uſed are what, by the joiners, are called the levelled rebate plane, and ſmall rounds: with the corners of the former, and proper handling of the latter, the wood is got off without force or violence, and the ſmalleſt particles may in general be got off, although in ſome paintings, and in particular parts of others, I have met with places on which I have thought it beſt to leave ſome particles, or fine ſplinters of wood; but in none I found it requiſite to leave the thin ſkin of wood, as ſuggeſted by the Committee, which I think would prevent the painting being ſo well attached to its laſt canvaſs. The raſps, and ſometimes a fine chiſſel, are uſeful, thoroughly to clear off ſuch parts as may be in hollow places, or where the particles of wood are left, as above. The time required will be various, according to the manner in which the painting was originally done, ſome being painted on boards previouſly pre-

pared with a water-colour, others immediately painted with oil on the wood: this laſt ſort is by much the moſt difficult; the other is more eaſy, as the previous preparation prevents the wood from imbibing the oil, and conſequently admits it to be more eaſily ſeparated. The head of Chriſt was a mixture of the two ſorts; ſome parts of it having been ſo prepared, and others very thinly, and others not at all ſo done, the which rendered the operation more tedious than any I have before met with, having taken me about ſix hours for three ſucceſſive evenings: other paintings of the ſame ſize I have done in one evening.

I am, SIR,

Your moſt obedient ſervant,

ROBERT SALMON.

Woburn,
April 22, 1797.

PAPERS

IN

MECHANICKS.

MECHANICKS.

THIRTY GUINEAS were this Seſſion voted to Mr. JOHN PEEK, for his Improvement of the PACKING-PRESS; a Plate of which is annexed, and a complete Model reſerved in the Society's Repoſitory for the uſe of the Public.

SIR,

I HEREWITH ſend you, for the inſpection of the Society for the encouragement of Arts, Manufactures, and Commerce, a model of a Packing-preſs, which I conceive to be a very material improvement on that machine. I have been a good deal accuſtomed both to packing and making Packing-Preſſes; and, from the experience I have had, it ſeems to me that it would render the operation much leſs laborious, and expedite the buſineſs very much.

One very conſiderable improvement is, that much time would be ſaved by its being

a double preſs; for it will very readily be perceived, that when the lower package has been ſufficiently preſſed, as the bed or preſſer is raiſed (another package being thereon), the upper package begins to be preſſed as that one underneath is relieved, and ſo alternately during the whole operation. Should the Society deem it ſuch an acquiſition, for the benefit of the public, as to merit their approbation and encouragement, I ſhall feel myſelf happy in having ſubmitted myſelf to the liberality of Gentlemen whoſe avowed intentions are to encourage individuals to exert themſelves for the univerſal benefit of Society.

Whenever called upon by you for that purpoſe, I ſhall be ready to attend the Society to anſwer any queſtions they may be pleaſed to put, and give any further information in my power.

I am, SIR,

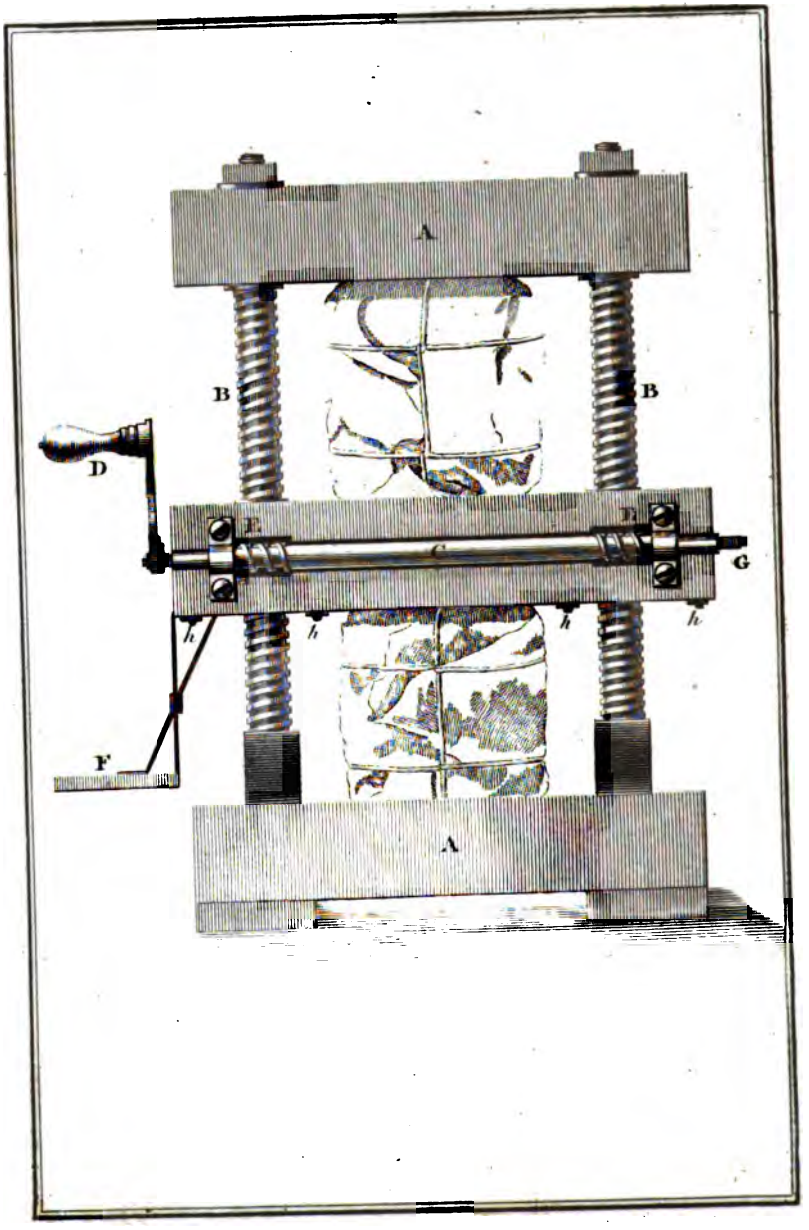
Your obedient humble ſervant,

JOHN PEEK.

No. 1, *Cold-Bath, New-Road, near the Adam and Eve, May* 23, 1796.

Mr. MORE.

Pl. 1.



Mr. Jno. Peck's new constructed Packing Press.

Deſcription of the PLATE *for Mr.* PECK's PACKING-PRESS.

A A. The frame of the Preſs.

B B. The large ſcrews, which, in this Preſs, contrary to thoſe in common uſe, are fixed and immoveable.

C. A circular iron bar, extending beyond the ſides of the Preſs, and having thereon two worms, or endleſs ſkrews, E E, which work in two toothed wheels fixed to the nuts, and, by turning the winch D, drive the nuts and bed up and down the ſkrews as may be found neceſſary.

F. A ſtage, ſuſpended from the bed, and on which the men ſtand who work the Preſs: ſuch a ſtage may, if found neceſſary, be fixed at the other end of the bar, as ſhown by the ſquare ſhoulder, G. The bed of this Preſs muſt be formed of two pieces of ſtrong wood, which are held together by ſcrews and nuts, paſſed through them, as ſhewn at *b b b b*.

THIRTY

THIRTY GUINEAS were this Seſſion voted to Mr. EDMUND BUNTING, for his Improvement of the CALENDER MILL, of which a Plate and Deſcription are hereunto annexed, and the Model reſerved in the Society's Repoſitory for the uſe of the Public.

WE, whoſe names are hereunto ſubſcribed, have carefully examined Mr. Edmund Bunting's Calender Mill, and do approve of it, as a valuable acquiſition to perſons in that branch of buſineſs, and every way calculated to deſerve the attention of the Society, as well from its cheapneſs as from its practicability.

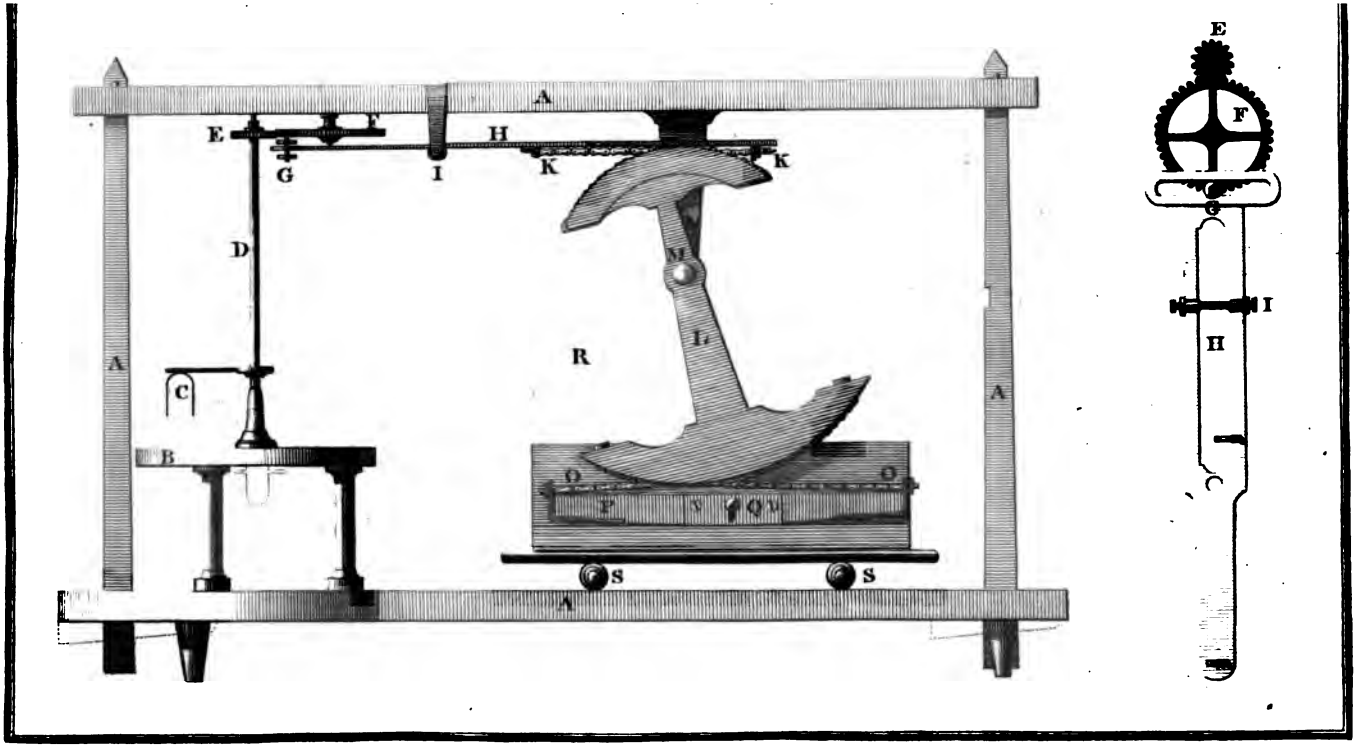
RICHARD BAKER,
Engine-maker, Fore-ſtreet,

SAMUEL WARNER,
Coal-yard, Drury-lane, Calendrer.

WM. WILKINSON and Co.
Calendrers, Hill-ſtreet, Finſbury-ſquare,

JOHN THWAITES,
Roſoman-ſtreet, Clerkenwell, Clock-maker.

To the Society for Encouragement of Arts, Manufactures, and Commerce.



Mr. Edmund Bunting's New Constructed Calender Mill &c.

Deſcription of the PLATE *of* Mr. EDMUND BUNTING'*s new-conſtructed* CALENDER MILL.

A A A A. The frame work.

B. The horſe track.

C. The horſe traces.

D. An upright ſhaft.

E. A wheel fixed on the upper end of the ſhaft.

F. A wheel working in the wheel E, and moveable on a ſtud or pin fixed in the frame work, A A.

G. A pin, with a roller on it, fixed in one of the arms or rim of the wheel F.

H. A connecting rod or piece, having a mortice or ſlit at right angles with the line of direction, which mortice receives the pin and roller G.

I. A roller to ſupport the end of the connecting rod H.

K K. Are chains with nuts and ſcrews at their ends to adjuſt them, one end of each fixed to the upper quadrant, the other ends to the connecting rod H.

L. A double-headed quadrant moveable on the ſtrong pin M, which pin ſerves the quadrants as a fulcrum: the pin M is fixed faſt in a piece N, the upper end of which is made faſt to the frame work A A.

O O. Chains, with nuts and ſcrews at one end to adjuſt them: one end of each is fixed to the lower head of the quadrant L, the other ends fixed by their nuts and ſcrews to the piece P, which piece has a mortice in its centre to receive the ſtrong pin Q, and which pin ſerves the preſs as a fulcrum when it pitches, to take the goods out. The pin Q is faſtened to the loaded preſs R, as deſcribed by the dotted lines in the Plate.

S S. Rollers to put the goods on.

TWENTY GUINEAS were this Seſſion voted to Mr. JOSEPH RIDLEY, for his Subſtitute for a CRANK for communicating motion to a FOOT-LATHE, of which a Plate and Deſcription are hereunto annexed.

GENTLEMEN,

I BEG leave to lay before you, for your approbation, a Model of a Subſtitute for a Crank for communicating motion to a Foot-lathe, which I deſcribe as follows (and is ſhewn in the plate annexed). The principal object aimed at, is to diſlodge the Crank, with its imperfections.

I am, Gentlemen,

Your obliged humble ſervant,

JOSEPH RIDLEY.

To the Society for Encouragement of Arts, Manufactures, and Commerce.

The difference between the method now recommended, and the common Crank, as uſually employed for this purpoſe, is, firſt, that in order to obtain a proper motion of the Crank with full power, it muſt be placed in one point of its revolution, which requires time and dexterity; whereas the mode now before us, is at all times ready for the ſtroke, and the revolution immediately takes place on putting the foot on the treadle.

Secondly, In the common Cranks, the power acts only in a ſmall part of the revolution, and the full power is only exerted at one point; whereas, by the means now propoſed, the power is conſtantly exerted at that point where it can act to the greateſt effect; and this will prove particularly uſeful in the finer and more curious kind of work, where the Crank cannot be made to go ſlow enough.

Deſcrip-

Fig. 2.

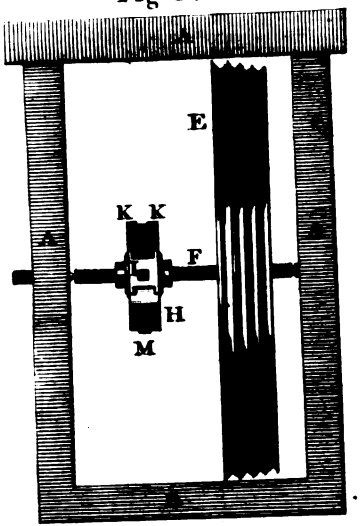


Fig. 1.

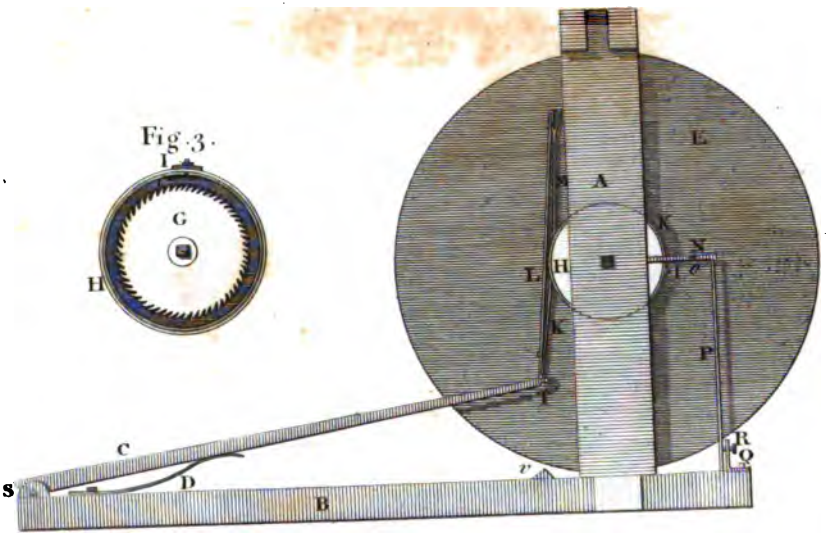


Fig. 3.

Mr. Joseph Ridleys Substitute for a Crank.

Deſcription of the PLATE *of Mr.* RIDLEY'S *improved* FOOT-LATHE.

Fig. 1, 2. A A A A. The frame, which incloſes the wheels and the whole machinery.

B B. The floor or platform on which the frame is fixed.

C. The treadle, moveable at the end of the platform at S, between two centers.

D. A ſpring placed under the treadle, in order to throw the treadle up, and keep it always ready for the foot to ſet to work.

E E. The large wheel for the band, to which the mandrel, &c. is to be attached in the uſual way.

Fig. 2. F. Is an iron ſpindle, on which the great wheel, E, and the ratchet-wheel, G, Fig. 3, is fixed; the ratchet-wheel is incloſed in a braſs box, H H H, with holes in the center, on each ſide, and ſmall projections, forming ſhoulders, that work on the

cylinder parts at the centre of the rachet-wheel, G, through which the ſpindle F goes.

I I I. A piece of braſs, ſliding on the ſurface of the rim of the box, H, to govern the click, *i*, which is pinned in the inſide of the braſs box, and is worked by three ſtraps going round the box H: the double ſtrap, K K K K, is faſtened to the ſlider I, and brought over the rim of the box H, and faſtened to the lower part of the the ſteel bar, L, which is jointed to end of the treadle at T; by putting the foot on the treadle, and preſſing it down, the click *i* takes hold of the rachet-wheel, G, by which the power is obtained. To diſlodge the click, and bring the braſs box back for another ſtroke, there is a ſingle ſtrap, M M, fixed to the other end of the ſlider I, and brought under the rim of the braſs box, H, and made faſt to the top of the ſteel bar L. When the foot is up, the great

wheel, E, is at liberty to go backward or forward, for the convenience of running back a ſcrew mandrel, or taking off a chuck: for diſengaging the click, two ſprings, N, lined with cork at the ends, are to be placed one on each ſide the braſs box, and preſſing gently againſt it.

O. A ſcrew which goes through the two ſprings, N, and regulates the degree of their preſſure on the braſs box; theſe ſprings are fixed on a thin piece of ſteel, P, riſing from the bottom, to which is ſoldered a piece of braſs, Q, having a ſcrew paſſing through it at R, by which the upright ſteel bar is regulated.

V. A ſmall piece of cork fixed on the platform, to prevent the treadle making any noiſe in coming down.

FORTY GUINEAS being the Premium offered for a PORTABLE MACHINE, for loading and unloading Goods, was this Seſſion adjudged to Mr. GEORGE DAVIS, of Windſor, Berks; the Model of which is reſerved in the Repoſitory of the Society for the inſpection and uſe of the Public, and a Plate of the Machine annexed.

SIR,

THE Society for the Encouragement of Arts, Manufactures, and Commerce, having offered a Premium for a Portable Machine to load and unload goods, I have herewith ſent a model, calculated, I humbly preſume, to anſwer the ends propoſed by the Society.

I have conceived it neceſſary to ſend a framed ſtage, as a repreſentation of a cart, to which the model is fixed on the front. The pullies that are on the ſtage may, for the

the moſt part, be affixed on the machine itſelf, adapted to every direction, and that will ſuit all carriages, however built. The model is made on a ſcale of about four inches to a foot, and will raiſe more than five hundred weight; therefore I am certain, when made to its intended ſize, it will be capable of loading a ton weight by one man only; and will be ſo portable as not to exceed one hundred and twelve pounds in weight. I therefore humbly hope that it will meet the approbation of the Society, and be found of great utility to the mercantile world.

I am, SIR,

Your obedient humble ſervant,

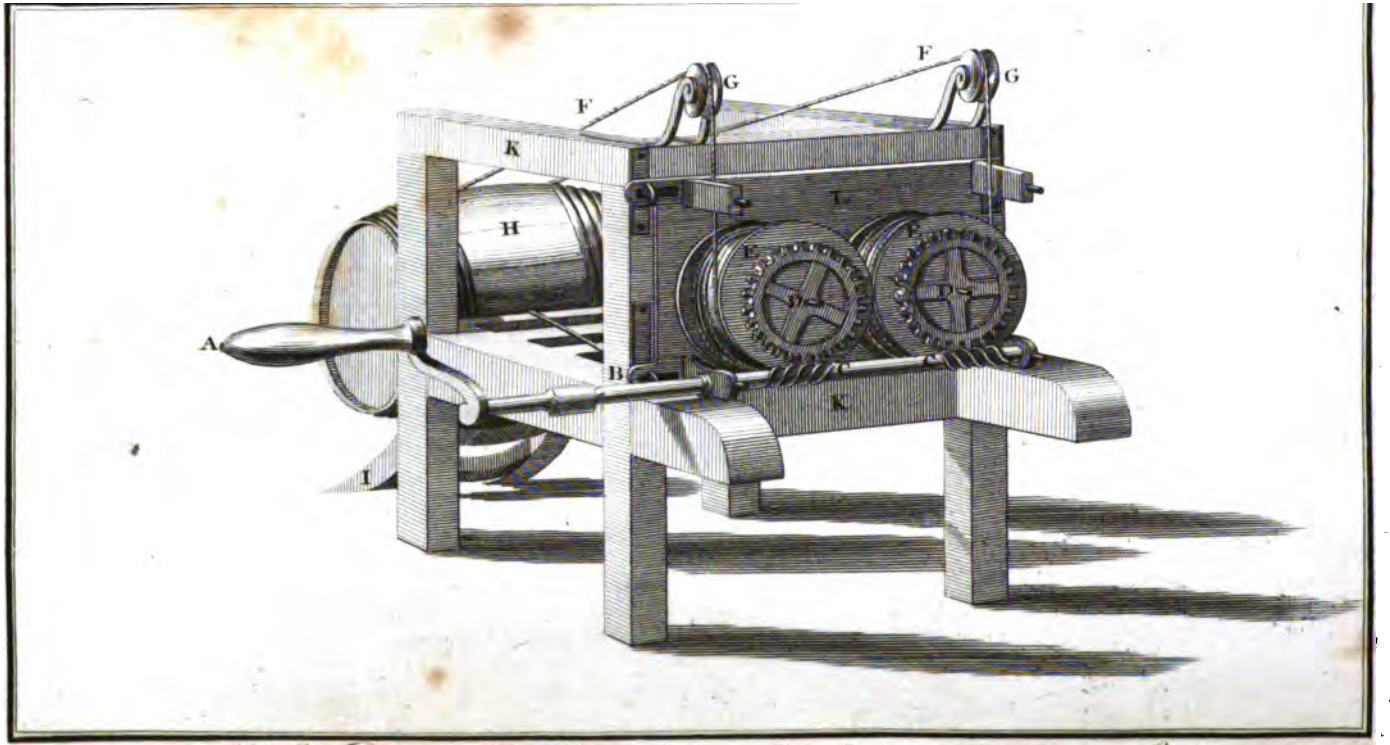
GEORGE DAVIS.

Thames-ſtreet, Windſor, Berks,
January 2, 1797.

MR. MORE.

Deſcription of the PLATE *of Mr.* DAVIS's MACHINE *for loading and unloading Goods.*

A, The winch, by which the bar
B, Having thereon two endleſs ſcrews or worms,
C C, Which, working in the toothed wheels
D D, Fixed to the barrels
E E, Round which the ropes
F F coil, wind up, or let the ſame out occaſionally; and which ropes, paſſing over the two pullies,
G G, Are brought round; and their ends, having hooks for that purpoſe, are hitched into ſtaples, fixed to the front of the cart or other carriage; within theſe ropes the load H is placed on a common pulley, I, which forms an inclined plane; up which, by the turning of the winch, the ropes are wound upon the barrels, and the load raiſed into the carriage.
K K. The frame, intended to repreſent the part of the cart or other carriage on which



Mr. Geo. Davis's Portable Machine for Loading & Unloading Goods.

which the machine is occaſionally to be placed.

The whole of the barrels and cogged wheels are contained in an iron box, L, the ſides of which are repreſented in the print, as taken off, that the conſtruction of the ſeveral parts may be ſhewn.

THIRTY GUINEAS were this Seſſion voted to Mr. ROBERT SALMON, of Woburn, Bedfordſhire, for his improved Machine for CUTTING CHAFF; of which a complete Model is reſerved in the Society's Repoſitory, and a Plate and Deſcription is hereunto annexed.

SIR,

I HAVE herewith ſent you the deſcription of my Chaff-cutter, together with an account of its properties, and the advantages which I conceive to be obtained thereby.

I am, SIR,

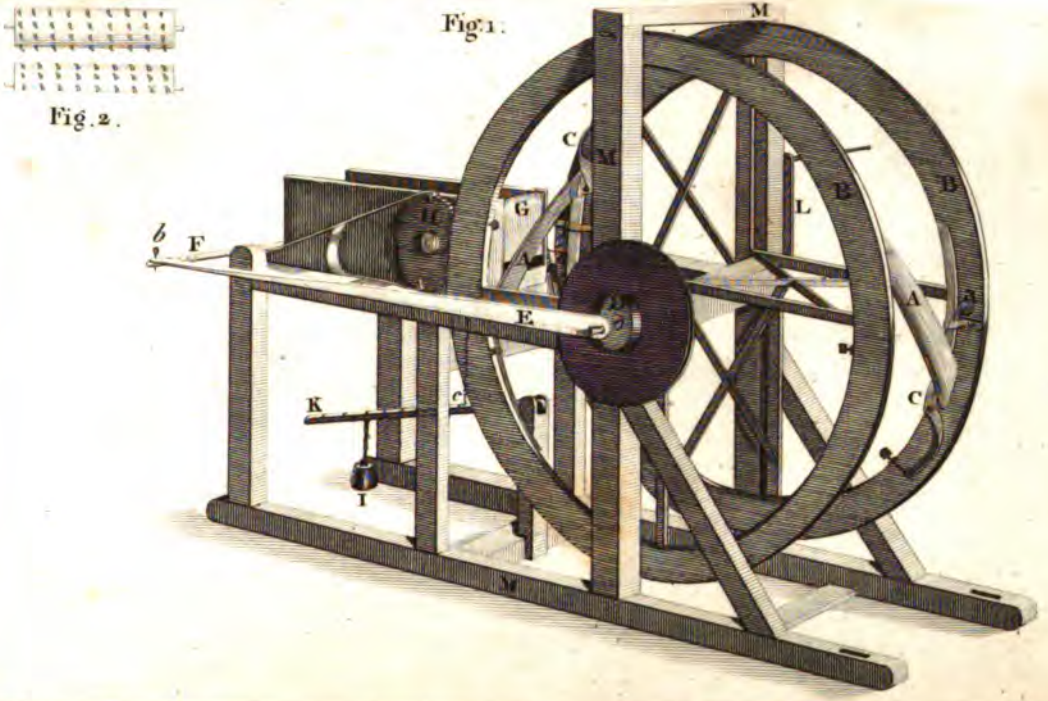
Your moſt obedient humble ſervant,

ROBERT SALMON.

Woburn Abbey,
April 19, 1797.

Mr. MORE.

Deſcription



Mr. Robt. Salmon's Improved Machine for Cutting Chaff.

Deſcription of the PLATE *of an improved Machine for* CUTTING CHAFF, *invented by Mr.* ROBERT SALMON, *of Woburn, Bedfordſhire.*

With this machine the Chaff is cut by two knives, A A, Fig. 1, fixed on the inſide of the fellies of two wheels, B B, which are ſtrongly connected together; the edge of the knives being at an angle of about forty-five degrees from the plane of the wheel's motion. Theſe knives are ſo fixed as to be forced forward by ſprings, C C, on the wheel, which ſprings are formed to adjuſt, and act more or leſs, as occaſion may require, ſo as to give the knife as much preſſure againſt the box as may be requiſite to cut the ſtraw. The knives are prevented from coming too forward, and occaſioning unneceſſary friction, by the wedges under the ſtaples *a a*; which wedges, as the knives wear, muſt be drawn out ſo as to admit the knives to come more forward. With the before mentioned proviſions it will be found very eaſy at any time to put on

new knives, as the ſprings, &c. will always adjuſt them to their work.

On one ſide of the wheel is fixed a round block of wood, D, in which there are four holes and a moveable ſcrew; to this block is ſcrewed one end of the feeding-arm, E, running nearly horizontally to the croſs bar F, at the end of the box G; to which croſs bar, by the pin *b*, moveable to five different holes in F, by means of which, and the four holes in the block before deſcribed, twenty changes in the length of the chaff may be obtained. The ſtraw is brought forward by the rollers in the box G, the form of which is ſhewn at Fig. 2, which rollers are turned from the outſide by the riggers or ratchet-wheels, H, one on each ſide the box, which move more or leſs, according to the ſtroke given to the croſs bar by the feeding-arm and wheel; by this mode of feeding, the ſtraw is perfectly at reſt, and does not preſs forward at the time of the knife cutting; and, by means of the pin being taken out of the croſs bar, the feeding is inſtantly thrown off, although the

the wheel and knives may continue their motion. Under the box is ſuſpended the preſſing weight I, which may be made more or leſs powerful by ſhifting the weight on the bearer K, to which it hangs, and alſo may be thrown on either ſide, more or leſs, as occaſion may require; which will be found uſeful, in order to force the ſtraw towards the knife, and to counterbalance the ratchet-wheel of the upper roller: near the fulcrum of this bearer is fixed a chain, ſhewn by the dotted line *c*; its upper end ſuſpended from a roller, at each extremity of which is a ſmall bar of iron joined to the end of the upper ſpiked roller, by which means the ſtraw is always equally preſſed in paſſing the two-ſpiked rollers.

L. The winch by which the machine is turned.

M M M M. The frame of the machine.

In order to apply this machine to the beſt advantage, the inventor propoſes a ſecond box, to be placed at the end of the firſt, which

which box may be of any length, and ſuſpended by a line and counter-weight, whereby the end of it is brought down level whilſt filling with ſtraw, and then drawn up, ſo as to give the ſaid box a declivity, to make the ſtraw more eaſily come forward.

It is alſo preſumed much advantage may be expected in this ſort of machine, from its cutting various lengths—reſting during the cut—the knives being adjuſted to their work by regulating ſprings—the feeding being readily thrown off—and the preſſure moveable to either ſide.

It is alſo well calculated to be applied to any power which may be occaſionally fixed to the oppoſite ſide to that on which it is turned by hand; and, by the additional box, when uſed by hand, the workman will be enabled to cut for ſome continuance, without ſtopping to feed.

Woburn,
April 19, 1797.

REWARDS

REWARDS

BESTOWED BY THE

SOCIETY,

From October, 1796,

To June, 1797.

REWARDS

BESTOWED IN

AGRICULTURE.

Claſs 1. TO JOHN CHRISTIAN CURWEN, Eſq. for having planted two hundred acres with Acorns, the GOLD MEDAL. See page 115.

Claſs 2. To SAMUEL KILDERBEE, Eſq. for having planted ſeventeen acres with Acorns, the SILVER MEDAL. See page 119.

Claſs 50. To the Right Honourable LORD BROWNLOW, for having planted ſeventeen acres with Oſiers, the GOLD MEDAL. See page 131.

Claſs 58. To LEWIS MAJENDIE, Eſq. for having planted ſeven acres and a half with Aſh, the GOLD MEDAL. See page 126.

Claſs

Claſs 106. To Mr. THOMAS JONES, for having raiſed nine hundred and thirty-five plants of the True Rhubarb, the GOLD MEDAL. See page 164.

To the Reverend JAMES STILLINGFLEET, for the culture and cure of the True Rhubarb, the GOLD MEDAL. See page 157.

Claſs 111. To Mr. JOSEPH HOSKINS, for having made eight thouſand eight hundred and forty-eight yards of Hollow Stone Drains, THIRTY GUINEAS. See page 202.

To CHARLES UPTON, Eſq. for having made ſix thouſand and ninety yards of Hollow Stone Drains, the SILVER MEDAL. See page 206.

Claſs 113. To JOHN BILLINGSLEY, Eſq. for having improved one hundred and twenty-four acres of Land lying waſte, the SIL-

VER

VER MEDAL, and TWENTY GUINEAS. See page 172.

Claſs 121. To WILLIAM OAKELEY, Eſq. for having improved one hundred and forty-two acres of Waſte Moor Land, the GOLD MEDAL. See page 186.

To Mr. JAMES TODD, for improving Barren Land, the SILVER MEDAL. See page 195.

Claſs 125. To the Reverend JAMES FILEWOOD, for having gained fifty-ſix acres of Land from the Sea, the GOLD MEDAL. See page 147.

To Mr. HENRY HARPER, for his paper on the different modes of cultivating Wheat, the SILVER MEDAL.

This paper will make part of a future Volume of the Society's Tranſactions.

To Mr. ADAM SCOTT, for his invention of a Machine for draining Land, called by him a Mole Plough, THIRTY GUINEAS. See page 226.

IN CHEMISTRY.

Claſs 157. To Mrs. JANE GIBBS, for having made a quantity of Starch from the root of the Arum Maculatum, THIRTY GUINEAS. See page 237.

IN POLITE ARTS.

Claſs 175. To the Right Honourable LORD GRANTHAM, for a Drawing, of Netley Abbey, the SILVER MEDAL.

Claſs 179. To Mr. CHARLES HENRY PARRY, for a Drawing of the Virgin and Child, the SILVER MEDAL.

Claſs

Claſs 181. To Miſs ELIZABETH CHRISTIANA FANSHAWE, for a Drawing, View near Rye-gate, the GOLD MEDAL.

Claſs 182. To Miſs ELIZA BARRETT, for a Drawing, View of the Peak, in Derbyſhire, the SILVER MEDAL.

To Miſs JEMIMA WATTS, for a Drawing, the Emperor Charles V. reſigning his Flemiſh and Spaniſh Dominions to his ſon Philip the Second, King of Spain, after Weſtall, the SILVER MEDAL.

Claſs 183. To Mr. ROBERT SMIRKE, junior, for a Drawing of the Water-Gate at York Buildings, the SILVER MEDALLION.

Claſs 184. To Mr. JOHN TODD, for a Drawing of Outlines, Sampſon ſlaying the Philiſtines, the GREATER SILVER PALLET.

Claſs 190. To Mr. RICHARD DAVIS, for his Survey of Oxfordſhire, FIFTY GUINEAS.

To Mr. ROBERT SALMON, for his invention of a proceſs of transferring Pictures from Walls and Pannels to Canvaſs, the GREATER SILVER PALLET. See page 243.

IN MANUFACTURES.

To Mr. JOHN MASON GOOD, for his diſſertation on maintaining and employing the Poor in pariſh workhouſes, TWENTY-FIVE GUINEAS.

This paper, ſent in claim of the Premium offered on that ſubject, will be publiſhed, under the inſpection of the author, by permiſſion of the Society.

IN MECHANICKS.

To Mr. JOHN PEEK, for his improved Packing-Preſs, THIRTY

THIRTY GUINEAS. See page 265.

To Mr. EDMUND BUNTING, for his improved Calender Mill, THIRTY GUINEAS. See page 268.

To Mr. JOSEPH RIDLEY, for his Subſtitute for a Crank for communicating motion to a Foot-lathe, TWENTY GUINEAS. See page 271.

Claſs 209. To Mr. GEORGE DAVIS, for his Portable Machine for loading and unloading Goods, FORTY GUINEAS. See page 276.

To Mr. ROBERT SALMON, for his new-invented Chaff-Cutter, THIRTY GUINEAS, See page 280.

To Mr. WILLIAM BULLOCK, No. 6, Portland-ſtreet, Soho, for his improved Rack Bolts for Folding-Doors, TWENTY GUINEAS.

A complete model of theſe Bolts is reſerved in the Society's Repoſitory, for the inſpection and uſe of the public, with a deſcription: and a pair of theſe Bolts are affixed to the front door of the Society-Houſe, whereby their merits will be effectually aſcertained.

PRESENTS

PRESENTS

RECEIVED BY THE

SOCIETY,

SINCE THE PUBLICATION OF THE FOURTEENTH VOLUME OF THESE TRANSACTIONS.

With the Names of the Doners.

BOOKS.

The Royal Society.

THE Second Part of the Eighty-fifth Volume, and Firſt Part of the Eighty-ſixth Volume, of the Philoſophical Tranſactions of the Royal Society.

The Society of Antiquaries.

Archæologia, or Miſcellaneous Tracts, relating to Antiquity, Vol. xii, Quarto.

DUBLIN SOCIETY.

A Book of Premiums, offered by the Dublin Society for the year 1796.

STEVENS TOTTON, ESQ.

A Pamphlet on Arched Sewers.

BATH SOCIETY.

The Eighth Volume of the Tranſactions of the Bath Society.

Mr. J. NICHOLS.

A Part of the Hiſtory of Leiceſterſhire; being an Account of the Pariſh of Staple-ford.

SIR JOHN ANSTRUTHER, Bart.

A Supplement to Sir John Anſtruther's Drill Huſbandry, MSS.

M. DE LA BLANCHERIE.

A Quarto Pamphlet, entitled, Proclamation de par toutes les Nations: l'Agent-Général de Correſpondance pour les Lettres, les Sciences & les Arts, à la Nation Angloiſe.

THE

THE HONOURABLE EAST-INDIA COMPANY.

Four folio Volumes, one being an Account of Indian Serpents collected on the Coaſt of Coromandel, together with Experiments and Remarks on their ſeveral Poiſons, by Patrick Ruſſell, M.D. F.R.S.

The other, three Numbers of a Work, entitled, Plants of the Coaſt of Coromandel, ſelected from the Drawings and Deſcriptions of William Roxburg, M.D.

LIEUTENANT HANKIN.

A Pamphlet, entitled, a Treatiſe on the Glanders and Farcy.

Mr. WILLIAM BIGLAND.

A Pamphlet, entitled, the Mechanick's Guide; or, a Treatiſe on the Laws of Mechanicks, as they relate to Wheel Machines.

LINNEAN SOCIETY.

The Firſt and Second Volumes of the Tranſactions of the Linnean Society.

DR.

DR. ANDERSON, of Madras.

Three ſmall Pamphlets, con taining Letters on various Subjects.

WILLIAM VAUGHAN, Eſq.

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Dampier, Edward, Eſq. *Grove-Place, Hackney*
Dancer, Mr. John, *Doncaſter*
P Daniel, John, Eſq. *Mincing-lane*
Daniell, James, Eſq. *Portman-ſquare*
Davenport, John, Eſq. *John-ſtreet, Adelphi*
D'Aubant, General Abraham, F. R. and A. S.
Davis, Mr. Jonas, *Chancery-lane*
Davies, the Rev. J. D. D. F. R. and A. S. Provoſt, *Eaton*
Davies, Rees, Eſq. *Swanſea*
Daviſon, Mr. Thomas, *Lombard-ſtreet, White-friars*
Dawes, John, Eſq. *Pall-mall*
Dawſon, William, Eſq. *Mancheſter-ſquare*
Dawſon, Mr. Thomas, *Weymouth-ſtreet, Portland-place*
Delafield, Joſeph, Eſq. *Caſtle-ſtreet, Long-acre*

Delavaud, George, Eſq. *New North-ſtreet*
De l'Hoſte, Lieut. Colonel, *Upper Belgrave-place, Pimlico*
††Dent, Robert, Eſq. F. A. S. *Temple-bar*
Dent, John, Eſq. M. P. F. A. S. *Temple-bar*
P††Dent, William, Eſq. *Batterſea-riſe*
Deſanges, Mr. William, *Wheeler-ſtreet, Spital-fields*
Deſenfans, Noel, Eſq. *Charlotte-ſtreet, Portland-place*
Devall, Mr. John, *Portland-ſtreet*
Devaynes, John, Eſq. *Spring-gardens*
Devis, Arthur William, Eſq. *Hanover-ſquare*
Dickinſon, Charles, Eſq. *Abroad*
Dickinſon, Henry, Eſq. *Leadenhall-ſtreet*
Digby, Kenelm, Eſq.
Ditcher, Philip, Eſq. *Eaſt Bergholt, Suffolk*
Dixon, Marcus, Eſq. *London-ſtreet, Fenchurch-ſtreet*
Doe, Thomas, Eſq. *Bygrave Park, Herts*
Dollond, Mr. Peter, *St. Paul's Church-yard*
Dollond, Mr. John, *ditto*
Dorrien, Magens, Eſq. M. P. *Cavendiſh-ſquare*
Douce, Thomas Auguſtus, Eſq. *Townmaling, Kent*
Doughty, John, Eſq. *Aldermanbury*
P Douglas, William, Eſq. *America-ſquare*
Dowbiggin, Mr. Lancelot
Dowbiggin, Samuel, Eſq. *Hatfield Regis, Herts*
Down, Richard, Eſq. *Bartholomew-lane*
Downer, Mr. Henry, *Fleet-ſtreet*
Drake, George, Eſq. *Bedford-ſquare*
Drake, Francis, Eſq. *Wimpole-ſtreet*

Drake, Mr. Samuel, *Margaret-ſtreet, Weſtminſter*
P Draper, Daniel, Eſq. *St. James's ſtreet*
Draper, Mr. John, *Clayton-place, Kennington-road*
Driver, Mr. William, *Kent-ſtreet-road*
Duberly, James, Eſq. *Soho-ſquare*
Du Bois, John Frederick, Eſq. *James ſtreet, Adelphi*
Du Bois, Edward, Eſq. *ditto*
Dundas, Robert, Eſq. M. P. *Somerſet-place*
Dundaſs, David, Eſq. *Richmond, Surry*
Dunn, Samuel, Eſq. *Adelphi*
Dunnage, Mr. John, *Philpot-lane*
Dunnage, Mr. James, *ditto*
P Duroure, Colonel John, F. R. and A. S.
††*Duval, the Rev. Philip, D. D. F. R. and A. S. *Newman-ſtreet*

E.

††P Egremont, George Wyndham Earl of
Eardley, Sampſon Lord, M. P. F. R. and A. S.
Einſiedel, his Excellency Count
Elphinſtone, the Honourable William
Eden, Sir John, Bart. M. P.
Eden, Sir Frederick Morton, Bart. F. A. S.
Erſkine, Sir William, Bart. M. P.
Earle, Henry, Eſq. *Gower-ſtreet*
Eaton, Rev. Stephen, A. M. and F. A. S. *St. Ann's, Soho*
P Eaton, Peter, Eſq. *Weſtford, Eſſex*
Echardt, Francis Frederick, Eſq. *Whiteland Houſe, Chelſea*

P Eckerſall, John, Eſq. *Burford Houſe, near Dorking, Surry*

Eccles, the Rev. Allan Harriſon, *Bow, Middleſex*

P Eccleſton, Thomas, Eſq. *Scareſbrick, Lancaſhire*

Edwards, John, Eſq. *Warnford-court*

Edwards, Bryan, Eſq. M. P. F. R. and A. S. *St. James's-ſtreet*

Edwards, Samuel, Eſq. *Stamford, Lincolnſhire*

Edwards, Mr. John, *at Mr. Wood's, No. 35, Broad-ſtreet buildings*

Ellill, John, Eſq. *Queen-ſtreet, Cheapſide*

Elliott, John, Eſq. *Pimlico*

P Errington, John, Eſq. *Stanhope-ſtreet, May-fair*

Eſdaile, Joſh, Eſq. *Albyns, Eſſex*

*††Ewer, Samuel, Eſq. F. L. S. *Hackney*

P Ewbank, Andrew, Eſq. *Upper Groſvenor-ſtreet*

F.

††Fife, James, Earl of, F. R. and A. S.

††Falmouth, George Evelyn Lord Viſcount

Finch, Honourable Captain William, *Albury, near Guildford*

Fludyer, Sir Samuel, Bart. *Baker-ſtreet, Mancheſter-ſquare*

P Fletcher, Sir Henry, Bart. M. P. *Southampton-row, Bloomſbury*

Ford, Sir Francis, Bart. *Queen-Ann-ſtreet Weſt*

Farquhar, Sir Walter, Bart. *Great Marlborough-ſtreet*

Fairman,

Fairman, William, Eſq. *Lynſted, Kent*
Farmer, Samuel, Eſq. *Beckenham, Kent*
Fatell, Rev. Charles, *Bungton, near Kimbolton, Huntingdonſhire*
Fearon, Henry, Eſq. *John-ſtreet, Adelphi*
P Felton, Samuel, Eſq. F. R. and A. S. *Carburton-ſtreet, Fitzroy-ſquare*
Ferguſon, James, Eſq. *High-ſtreet, Borough*
P Fermor, William, Eſq.
† Ferris, Samuel, M. D. F. R. and A. S. *Harpur-ſtreet*
Feuilleteau, William, Eſq. F. R. and A. S. *Charlotte-ſtreet, Rathbone-place*
Filmer, Beverſham, Eſq. *King's-road*
Fitzherbert, Thomas, Eſq. *Roehampton, Surry*
Fleetwood, Robert, Eſq. *Ely-place*
Fletcher, Mr. Thomas, *Bridge-ſtreet, Blackfriars*
Fludyer, George, Eſq. M. P.
Forde, the Rev. Brownlow, *Margaret-ſtreet, Cavendiſh-ſquare*
Fordyce, George, M. D. F. R. S. *Eſſex-ſtreet, Strand*
Forſyth, William, Eſq. F. A. S. *Kenſington*
Fourdrinier, Henry, Eſq. *Lombard-ſtreet*
†† Fowler, David Burton, Eſq. *Fig-tree-court, Temple*
P Franco, Jacob, Eſq. *Gerard's Croſs*
Frankland, William, Eſq. *Cavendiſh-ſquare*
Fraſer, James, Eſq. *Golden-ſquare*
Fraſer, Simon, Eſq. *King's-arms-yard, Coleman-ſtreet*

Fraſer, William, Eſq. F. R. S. *Queen-ſquare, Holborn*
Fraſer, Mr. David, *Great Pulteney-ſtreet*
Frend, Mr. George, *Abroad*
Froſt, Mr. Thomas, *Goldſmith-ſtreet*
Fry, Edmund, Eſq. *Type-ſtreet, Chiſwell-ſtreet*
Fry, Mr. Joſeph Storrs, *Briſtol*
Fry, Mr. Henry, *Middle Moorfields*
Fullarton, Colonel William, M. P. and F. R. S. *Parliament-ſtreet*
Fulton, Henry, Eſq. *Watling-ſtreet*

G.

Gordon, Alexander, Duke of, K. T. and F. R. S.
* Groſvenor, Richard Earl, F. R. S.
Glencairn, Earl of
Glaſgow, George Earl of, F. R. and A. S.
P Gallway, Arundell Lord Viſcount, M.P. and K.B.
P Greville, Right Hon. Charles, M. P. and F. R. S.
Greville, the Honourable Robert, F. R. and A. S.
Grey, Sir Henry, Bart. *Howick, Northumberland*
††Gaſcoigne, Sir Thomas, Bart. F. A. S. *Partington, in the County of York*
Green, Major-General Sir William, Bart. F. R. and A. S. *Chandos-ſtreet, Cavendiſh-ſquare*
P Geary, Sir William, Bart. M.P. *Oxen Heath, Kent*
Galloway, James, Eſq. *Gower-ſtreet*
Gape, Joſeph, Eſq. *Bridge-ſtreet, Weſtminſter*
Garland, Nathaniel, Eſq. *Epſom and Conduit-ſtreet*

Garnett,

Garnett, David, Eſq. *Baſinghall-ſtreet*
Garrett, Daniel, Eſq. *Portſmouth*
Garthſhore, Maxwell, M. D. F. R. and A. S. *St. Martin's lane*
Garthſhore, William, Eſq. M. P. *Mancheſter-ſquare*
Gibbes, George Smith, M. A. *Magdalen College, Oxford*
Gipps, Mr. John, *Strand*
Giſborne, Thomas, M. D. F. R. S. *Clifford-ſtreet*
Giſt, Samuel, Eſq. *Gower-ſtreet*
P Godſchall, William Man, Eſq. F. R. and A. S.
Godwin, James, Eſq. *Wingfield, Berks*
Golden, Robert, Eſq. *Red-lion-ſtreet*
Goldthwait, Thomas, jun. Eſq.
Goodwyn, Henry, jun. Eſq. *Eaſt Smithfield*
Goodchild, Mr. Thomas, *Tooley-ſtreet*
Goodhew, William, Eſq. *Deptford*
Gotobed, John, Eſq. *Norfolk-ſtreet, Strand*
Gould, the Rev. William, D. D. F. R. S. *Staple-ford-Abbot, Eſſex*
Gordon, Edward, Eſq. *Bromley, Middleſex*
Goſling, Francis, Eſq. *Fleet-ſtreet*
Goſling, William, Eſq. F. A. S. *Fleet-ſtreet*
Graham, George, Eſq.
Graham, Aaron, Eſq. F. R. S. *Great Ruſſel-ſtreet*
Grant, General James, *Sackville-ſtreet*
Græme, General David, *Lower Seymour-ſtreet*
Grant, Major John, *Hill-ſtreet, Berkeley-ſquare*
††Grant, John, Eſq. *Fleet-ſtreet*
Grant, Peter, Eſq. *Fort Auguſtus, North Britain*
P††Gray, Walker, Eſq. *London-ſtreet*

Gray, John, Eſq. *Somerſet-place*
††Green, Valentine, Eſq. F. A. S. No. 47, *Warren-ſtreet, Fitzroy-ſquare*
P Green, Rupert, Eſq. *Percy-ſtreet, Rathbone-place*
Green, Mr. Joſeph, *Tower-ſtreet*
Green, Mr. William, *Deptford*
††Greene, Thomas, Eſq. F. A. S. *Gray's-inn*
Greene, Joſeph, Eſq. *New Baſinghall-ſtreet*
Greenwood, Abraham, Eſq. *Steining-lane*
P Gregory, Robert, Eſq. *Berners-ſtreet*
Gower, Charles, Eſq. *Edmonton*
Greſley, Rev. William
Grieve, John, M. D. F. R. and A. S. *Norfolk-ſtreet, Strand*
Griffin, Mr. John, *Steward-ſtreet, Spitalfields*
††P Griffith, Edward, Eſq. of *Caernarvon*
Griffith, John, Eſq. *Queen-ſquare, Bloomſbury*
Groote, George William, Eſq. *Dean-ſtreet, Soho*
Groſvenor, Richard Erle Drax, Eſq. M. P. *Berkeley-ſtreet, Mancheſter-ſquare*
P Grote, George, Eſq. *Threadneedle-ſtreet*
Groves, John, Eſq. *Sloane-ſtreet, Knightſbridge*
††Grubb, John, Eſq. *Lincoln's-inn-fields*
Gubbins, Mr. James, *Surry-ſtreet*
Gwillim, Henry, Eſq. *Boſwell-court, Carey-ſtreet*

H.

††*Hardwicke, Philip Earl of, F. R. and A. S.
Hawke, Martin Lord
Heathfield, Francis Auguſtus Lord
Haſlang, His Excellency Count

Harcourt, Honourable General William
Honeywood, Sir John, Bart. M. P. *Bedford-ſquare*
Hume, Sir Abraham, Bart, F. R. S. *Wormleybury*
Hanmer, Sir Thomas, Bart. *Hanmer, Flintſhire*
Heathcote, Sir John, *Edenſor, Langton Hall, Staffordſhire*
Harley, Right Honourable Thomas, Alderman, M. P. *Alderſgate-ſtreet*
Hope, the Right Honourable Brigadier-General John
Hope, the Honourable Lieutenant-Colonel Charles
Herne, Sir William, Alderman
Hay, Major-General Alexander
Hadley, Mr. Nathaniel, *Long-acre*
Haigh, John, Eſq. *Old Jewry*
Hall, Mr. Abraham, *Aldermanbury*
Hall, Mr. Luke, *Gutter-lane, Cheapſide*
Hall, Phinehas, Eſq. *Hans-place, Sloane-ſtreet*
Hallet, William, Eſq. *Farringdon, Berks*
Hamilton, Rev. Anthony, D. D. F. R. and A. S. *Saville-row*
Hamilton, William, Eſq. *Blackheath*
Hamilton, William, M. D. *Old Broad-ſtreet*
††Hammond, William Parker, Eſq.
Hammond, Francis, Eſq. *Potter's Bar, Herts*
Handaſyde, Mr. Gilbert, *Green-walk, Southwark*
Hankey, Joſeph, Eſq. *Poplar*
Hanmer, Job, Eſq. *Holbrook Hall, Sudbury*
Hardcaſtle, Joſeph, Eſq. *Duck's-foot-lane*
Harding, John, Eſq. *College-ſtreet, Weſtminſter*
P††Harman, Jeremiah, Eſq. *Princes-ſtreet, Lothbury*

Harnage,

Harnagè, Lieutenant-Colonel, *Soho-ſquare*
Harper, Robert John, Eſq. *Britiſh Muſeum*
Harriſon, Richardſon, Eſq. *Freern-Barnet, Middleſex*
Harrop, Joſeph, Eſq. *Great Marlborough-ſtreet*
Hart, Mr. Henry, *Lamb's-conduit-ſtreet*
Harwood, William, Eſq. *Hanwell park*
Haſſal, Charles, Eſq. *Eaſtwood, Pembrokeſhire*
* Haſtings, Warren, Eſq. *Park-lane*
Haſwall, Mr. Alexander, *Wigmore-ſtreet*
Hawkins, John, Eſq. F. R. S.
Hay, Robert, Eſq. *Portland-place*
Hay, James, Eſq. *Great Portland-ſtreet*
Hay, Colonel Patrick, *Upper Norton-ſtreet*
Hayter, Mr. Jonathan, *Milk-ſtreet, Cheapſide*
Hayward, Mr. Richard, *Piccadilly*
††Heaviſide, Richard, Eſq. *Somerſet-ſtreet, Portman-ſquare*
Heaviſide, John, Eſq. *George-ſtreet, Hanover-ſquare*
P†††Hebert, James, Eſq. *Great Portland-ſtreet*
Hele, John, Eſq. *Charlotte-ſtreet, Rathbone-place*
Henderſon, John, Eſq. LL. B. and F. A. S. *Terrace, Adelphi*
Hepworth, John, Eſq. *York*
Heron, Patrick, Eſq. M. P.
Hewlett, Mr. William, *Strand*
Hewetſon, John, Eſq. *Tower-hill*
P Heylyn, John, Eſq. *Iſlington, and Threadneedle-ſtreet*
Hilton, John, Eſq. *Ironmonger-lane, Cheapſide*

Hill,

Hill, Richard, Eſq. *Plymouth, Glamorganſhire*
Hill, Edward, Eſq. *Albion-ſtreet, Blackfriars-road*
P Hoare, Charles, Eſq. F. A. S. *Chapple-ſtreet, Groſvenor-place*
Hoare, Jonathan, Eſq. *Stoke Newington*
Hobbs, Mr. Joſeph, *Margaret-ſtreet, Cavendiſh-ſquare*
P Hobſon, William, Eſq.
Hobſon, George, Eſq.
Hodgſon, Mr. George, *Lambeth-marſh*
Hood, Alexander, *Royal Navy*
Hodgkinſon, Mr. Sampſon, *Snow-hill*
P Holder, James, Eſq. *Aſh-park*
P Holland, Henry, Eſq. F. A. S. *Sloane-place, Knightſbridge*
Holland, Mr. Richard, *Half-moon-ſtreet, Piccadilly*
Holland, Mr. George, *High Holborn*
Holliday, John, Eſq. F. R. S. *Great Ormond-ſtreet*
Hollis, Thomas Brand, Eſq. F. R. and A. S. *Cheſterfield-ſtreet*
Holcombe, Rev. William, *Canon of St. David's*
Holmes, Mr. John, *Whitefriars*
Holme, Mr. William, *Baſs-court, Thames-ſtreet*
Home, Patrick, Eſq. M. P. *Gower-ſtreet*
Homfray, Samuel, Eſq. *Mirtry Tidvike, Glamorganſhire*
Honeybourne, Mr. Robert, *Stourbridge*
Honeywood, Filmer, Eſq. M. P. *Charles-ſtreet, Berkeley-ſquare*
Honyman, Captain Robert, M. P. *Royal Navy*

Hooper,

Hooper, Thomas, Eſq. *Panty Goitre, Monmouthſhire*
Horner, Thomas, Eſq. *Mell's Park, near Froome, Somerſetſhire*
Horton, Mr. William, *Newgate-ſtreet*
Hotham, John, Eſq. *Middle Temple lane*
P Houghton, William, Eſq. *Conduit-ſtreet*
Howard, Barnard, Eſq. *Farnham, Suffolk*
Howell, Mr. John, *Vine-ſtreet, Piccadilly*
P Hudſon, Vanſittart, Eſq. *Temple*
Hughes, Rev. Edward, *Greenfield-hall, Flintſhire*
Hulme, William, Eſq. *Twydale, Kent*
† Hunt, Rowland, Eſq.
Hunter, John, Eſq. M. P. *Bedford-ſquare*
Hurt, Charles, Eſq. *Wirkſworth, Derbyſhire*
Huſſey, William, Eſq. *Saliſbury*
Hyde, John, Eſq.

I,

P Ilchester, Henry Thomas Earl of
Johnſtone, the Honourable Lieutenant-Colonel Cochrane, M. P.
†† Ingilby, Sir John, Bart. M. P. F. R. and A. S.
Johnſton, Sir William, Bt. *Queen-ſtreet, May-fair*
† Jacob, Joſeph, Eſq. *Greek-ſtreet, Soho*
Jardin, Mr. John, *Throgmorton-ſtreet*
Jeffery, George, Eſq. *ditto*
Jefferys, Thomas, Eſq. *Cockſpur-ſtreet*
Jefferys, Mr. George, *Brick-lane, Old-ſtreet*

Jefferys,

Jefferys, Mr. George
P Jenkins, Thomas, Eſq. *Rome*
P Jenour, Joſhua, Eſq. *Fleet-ſtreet*
Jervoiſe, Jervoiſe Clark, Eſq. M. P. *Hanover-ſquare*
Jeudwine, Thomas, Eſq. *Baſinghall-ſtreet*
Ince, William, Eſq. *Broad-ſtreet, Carnaby-market*
Inglis, Hugh, Eſq. *Bedford-row*
Innes, Hugh, Eſq. *Taviſtock-ſtreet, Bedford-ſquare*
Johnſon, Alexander, LL. and M. D. *Portland-ſtreet*
††Johnſon, John, Eſq.
Johnſon, John, jun. Eſq. *Berners-ſtreet*
Johnſon, Mr. James, *Bryanſtone-ſtreet*
Jones, Edward, Eſq. *Weprehall, Flintſhire*
Jones, John, Eſq.
Jones, John, Eſq. *Frankley, Wiltſhire*
Jones, Mr. Francis, *Groſvenor-ſtreet*
Jones, Mr. John, *Charlotte-ſtreet, Manſion Houſe*
Jourdan, Major Edward, *Harley-ſtreet*
Ives, Jeremiah, Eſq. *St. Clement's, Norwich*
Ives, Jeremiah, Eſq. *Cotton, near Norwich*
Jupp, Richard, Eſq. *King's-road*

K.

* Kinnoull, Robert Drummond Hay, Earl of
Kinnaird, George Lord, F. R. and A. S
Keith, George Lord, *Cavendiſh-ſquare*, M. P.
Kaye, Rev. Sir Richard, Bart. Dean of Lincoln, LL. D. F. R. and A. S.

Kappen,

Kappen, Mr. William, *Southampton-ſtreet, Strand*
Karr, Andrew Ramſay, Eſq. *Wimpole-ſtreet*
Keighley, James, Eſq. *Hertford-ſtreet, May-fair*
††Kendrick, Edward, Eſq. *King-ſtreet, Covent-garden*
Kent, Nathaniel, Eſq. *Fulham, Middleſex*
††Keyſall, John, Eſq. *Queen's-ſquare, Holborn*
Kidman, Mr. John, *Fleet-ſtreet*
King, the Rev. Richard, *Worthin, Shropſhire*
King, Mr. Thomas, jun. *Great Queen-ſtreet*
Kingſton, John, Eſq. *Stratford-place*
Kirkby, William, Eſq. *Exchequer Office, Temple*
Knill, John, Eſq. *Gray's-inn*
Knight, Mr. George, *Cliffe, near Rocheſter*
Knubley, Richard, Eſq. *Bath*

L.

Loughborough, Alexander Lord, F. R. and A. S. Lord High Chancellor of Great-Britain
P Leeds, Francis Duke of, K. G. F. R. and A. S.
P Lanſdown, the Moſt Noble the Marquis of
* Leiceſter, George Earl of, F. R. S. and Preſident of the Society of Antiquaries
**Liverpool, Charles Earl of, V. P.
P Lewiſham, George Lord Viſcount, F. R. and A. S. and F. L. S.
Leiceſter, Sir John, Bart. M. P. *Piccadilly*
P Laurent, Sir Francis, Kt.
* Lewes, Sir Watkin, Kt. V. P. *Parliament-ſtreet*
P††Lambert,

P††Lambert, Charles, Eſq. F. A. S. *Temple*
Lambert, Aylmer Bourke, Eſq. F. R. and A. S. and F. L. S. *Lower Groſvenor-ſtreet*
Lambert, Anthony, Eſq. *George-ſtreet Hanover-ſquare*
Landman, Iſaac, Eſq. *Royal Academy, Woolwich*
P Larkins, William, F. R. and A. S. Eſq. *Blackheath Point*
Law, Thomas, Eſq. *Abroad*
Lawrence, Richard, Eſq. *Mincing-lane*
Lawrence, Richard James, Eſq.
Leach, Mr. Edward, *Cotton Manufactory, Tottenham-court-road*
Lefevre, Charles Shaw, Eſq. M. P. *Bedford-ſquare*
††Leake, William, Eſq. *Parliament-ſtreet*
Leatham, William, Eſq. *Chatham-ſquare, Blackfriars*
Leatham, Iſaac, Eſq. *Burton-le-ſtreet, Yorkſhire*
Legh, George John, Eſq. *Pall-mall*
††Leigh, John, Eſq. *Bedford-ſquare*
Lettſom, John Coakley, M. D. F. R. and A. S. *Baſinghall-ſtreet*
Levy, Moſes Iſaac, Eſq. F. A. S. *Piccadilly*
††Lewis, John, Eſq. *Welbeck-ſtreet*
††Lewis, Percival, Eſq. *Lincoln's-inn*
††Lewis, William, Eſq. F. L. S. *Holborn*
Lewis, Thomas, Eſq. *Gower-ſtreet*
Liptrap, John, Eſq. F. A. and L. S. *Whitechapel-road*
††Little, Charles, Eſq. *Wigmore-ſtreet*

Llewellyn,

Llewellyn, John, Eſq. *Penllergare, Glamorganſhire*

P Lloyd, William, Eſq.

* Lock, William, Eſq. *Golden-ſquare*

P Long, Samuel, Eſq. M. P. *Hill-ſtreet, Berkeley-ſquare*

Longman, Mr. Thomas, *Cheapſide*

P Loveden, Edward Loveden, Eſq. M. P.

Lowndes, William, Eſq. *Scotland-yard, Whitehall*

Lowten, Thomas, Eſq. *Temple*

Lowth, Rev. Robert, *George-ſtreet, Hanover-ſquare*

††Lumley, William, Eſq. *Penton-ſtreet, Iſlington*

† Lynd, James, Eſq. *Beaufort-buildings*

M.

* Morton, George Earl of, F. R. and A. S.

P Malmeſbury, James Lord, K. B. and LL. D.

Milford, Richard Lord, M. P.

*PMonckton, the Honourable Edward, M. P. *Portland-place*

Middleton, Sir Charles, Bart. M. P. *Hertford-ſtreet, May-fair*

Moleſworth, Sir William, Bart. *Pencarrow, Cornwall*

* Mac Pherſon, Sir John, Bart. M. P.

Morſhead, Sir John, Bart. M. P. *Hampton-court*

Monro, Sir Hugh, Bart. *Gloceſter-place, Portman-ſquare*

P Mackreth, Sir Robert, M. P. *Cork-ſtreet*

Macleod, Major-General Norman, M. P. F. R. S. *St. Alban's-ſtreet*

Macdonald, John, M. D. *King-ſtreet, Soho*

M'Leod, John, Eſq. *Argyll-ſtreet*

††Mac George, William, Eſq. *New Bond-ſtreet*

Macmurdo, Mr. Edward Longdon, *Bread-ſtreet*

P Macnamara, John, Eſq.

Mac Dougal, Mr. James, *Great Windmill ſtreet*

Mac Konochie, A. Lochart, Eſq. *Suffolk-ſtreet, Charing-croſs*

Malcolm, Mr. William, *Stockwell*

Malcolm, Mr. Jacob, *ditto*

Malo, Mr. Joſeph, *Pavement, Moorfields*

Malton, James, Eſq. *Norton-ſtreet, Portland-place*

Manley, John George, Eſq. *Braziers, Oxon*

Mainwaring, Mr. Thomas, *Strand*

Marriott, John Martin, Eſq. *Lamb's-conduit-ſtreet*

Marſh, Mr. William, *South-ſtreet, Groſvenor-ſquare*

Marſhall, Andrew, M. D. *Thavies-inn*

Martin, James, Eſq. M. P. *Downing-ſtreet*

Martin, Matthew, Eſq. *Cleveland-row*

Martyn, the Rev. Thomas, B. D. F. R. S. F. L. S. *Profeſſor of Botany, Cambridge, Frith-ſtreet, Soho*

Martin, Thomas, Eſq. *Great Marlborough-ſtreet*

††Maſkall, Samuel, Eſq. *Mitre-court, Milk-ſtreet*

Maſon, Miles, Eſq. *Finſbury-ſquare*

Matthews, Edward, Eſq. *Sol's-row, Tottenham-court-road*

Mayor, Mr. Joſeph, *Little Moorfields*

Mayhew, John, Eſq. *Broad-ſtreet, Carnaby-market*
Meares, John, Eſq. *Park-lane*
* Melville, General Robert, F. R. and A. S. *Brewer-ſtreet*
Meredith, Mr. William, *Hyde-ſtreet, Bloomſbury*
Mercer, George, Eſq. *Queen-Ann-ſtreet, Weſt*
Merry, William, Eſq. *Gower-ſtreet*
Metcalfe, Chriſtopher Barton, Eſq. *Weſt-Ham*
††Meyrick, John, Eſq. F. A. S. *Great George-ſtreet*
††Michell, Mathew, Eſq. *Beaufort-buildings, Strand*
Middleton, Mr, John, *Paradiſe-row, Lambeth*
††Mildred, Daniel, Eſq. *White-hart-court, Grace-church-ſtreet*
Miles, Mr. John, *Birmingham*
Millikin, Mr. Halley Benſon, *Whitechapel*
Millington, Langford, Eſq. *Tooting, and Berners-ſtreet*
Millington, Mr. Thomas, *Golden-ſquare*
P Mills, Abraham, Eſq. *Fence-houſe, Macclesfield*
Mills, Mr. George, *Old Swan-ſtairs*
Miller, John, Eſq. *Red-Lion-ſquare*
Milnes, Richard Slater, Eſq. M. P. *Foiſton, near Ferrybridge, Yorkſhire*
Miniſh, Mr. William, *Whitechapel*
Miſt, Mr. Henry, *Long-acre*
Mitchel, Michael, Eſq. *Walthamſtow*
Mitchel, William, Eſq. M. P. *Devonſhire-place*
Mitford, Robert, Eſq. *Great Portland-ſtreet*
Montreſor, John, Eſq. *Harley-ſtreet*
Montolieu, Lewis, Eſq. F. A. S.
* Montagu, Mrs. Elizabeth, *Portman-ſquare*

Morſe,

Morſe, Leonard, Eſq. F. R. S. and S. A. *Great George-ſtreet, Weſtminſter*
Morris, Mr. William, *Whitcombe-ſtreet*
Moſely, Walter Michael, Eſq. *near Worceſter*
Moſer, Mr. John, *Frith-ſtreet, Soho*
Mulcaſter, Colonel Frederick George, *Portſmouth*
Munn, Daniel Rolfe, Eſq. *Hammerſmith*
Murrey, John, M. D. *Bedford-ſtreet, Bedford-ſquare*

N.

P Norfolk, Charles Duke of, Preſident, F. R. and A. S.
**Northumberland, Hugh Duke of, V. P. K. G. F. R. and A. S.
††Northampton, Charles Earl of
Northeſk, William Earl of
Naſh, Mr. Thomas, *Worceſter*
Naſh, John, Eſq. *Dover-ſtreet*
Neale, Mr. Thomas, jun. *Beaumont-ſtreet, Cavendiſh-ſquare*
Newcombe, Mr. William, *Great Queen-ſtreet, Weſtminſter*
Newnham, the Rev. William Moore, *Boyle-ſtreet, Saville-row*
P Newton, Robert, Eſq. *Norton-houſe, Berks*
P Newton, Andrew, Eſq. *Cecil-ſtreet, Strand*
De Neyva, Joſeph da Cunha Para, Eſq. *Artillery-place*
Nichols, Mr. Deputy, *Red Lion-paſſage, Fleet-ſtreet*

Nicolay, Mr. Frederick, jun. *St. James's Palace*
Nicol, Mr. George, *Pall-mall*
Noble, William, Eſq. *Pall-mall*
Nouaille, Peter, Eſq. *Greatneſs, Kent*
Noireterre, Mademoiſelle de, *Paris*
Norman, Robert, Eſq. *Cannon-ſtreet*
Nutting, Mr. Joſeph, *King-ſtreet, Covent-garden*

O.

P Offory, John Earl of Upper, F. R. and A. S.
Ogilvie, Scroope, Eſq. *Pall-mall*
Ogle, Mr. Thomas, *Abroad*
Oldham, John, Eſq. *Sackville-ſtreet*
Oliver, the Rev. John, *Croombs Hill, Blackheath*
Ord, John, Eſq. F. R. and A. S. *Lincoln's-inn-fields*

P.

**Portland, William Henry Duke of, V. P. K. G. F. R. and A. S.
P Plymouth, Otho Earl of, F. R. and A. S.
**Pitt, the Right Honourable William, M. P.
Pelham, the Right Honourable Thomas, M. P. *Stratton-ſtreet*
Powlett, the Right Honourable Thomas Orde, Governor of the Iſle of Wight, M. P. and F. A. S. *Hackwood, Hampſhire*
* Puſey, Honourable Philip, *Upper Brook-ſtreet*
Pulteney, Sir William, Bart. M. P. *Bath-houſe*
Packer, Mr. William, *King-ſtreet, Soho*

Page, Francis, Eſq. M. P. *Aſhton, Oxfordſhire*
Page, Francis, Eſq. *Newbury, Berks*
Page, Frederick, Eſq. *Aldermaſton, Berks*
Page, Mr. John, *High Holborn*
P Paice, Mr. Joſeph, *Bread-ſtreet-hill*
Pakenham, Captain Edward, R. N.
Papworth, Mr. John, *Great Portland-ſtreet*
Pariſh, John, Eſq. F. A. S. *Gibraltar*
Park, Mr. James, *Baldwin's-gardens*
Parkes, Mr. Richard, *Broad-ſtreet, Bloomſbury*
Parkins, Mr. William, *Adelphi Wharf*
Parker, David, Eſq. *King's Mews*
Parker, Mr. William, *Fleet-ſtreet*
††Parker, Mr. Samuel, *Bridge-ſtreet, Blackfriars*
Parker, Mr. Thomas, *Fleet-ſtreet*
Parker, Samuel Walker, Eſq. *White-lead Works, Iſlington*
Parkinſon, Mr. Thomas, *Bloomſbury-market*
Parnell, Mr. Hugh, *Church-ſtreet, Spitalfields*
Parry, Mr. Edward, *King-ſtreet, Cheapſide*
Parry, William, Eſq. *Norton-hall, Wiltſhire*
Paterſon, William, Eſq. *Devonſhire-place*
Paxton, William, Eſq. *Queen-ſquare, Holborn*
Paxton, Mr. Chriſtopher, *Alderſgate-ſtreet*
††Payne, Samuel, Eſq. *Vauxhall*
Peacock, Mr. Lewis, *Symond's-inn*
Pearce, William, Eſq. *Craig's-court*
††Pearſon, James, Eſq. *Baſinghall-ſtreet*
Peel, Robert, Eſq. M. P. *Bury, Lancaſhire*
Peirſon, Peter, Eſq. F. R. and A. S. *Inner Temple*
Penruddock, Charles, Eſq. *Soho-ſquare*

††Penn, Granville, Eſq. F.A.S. *New-ſtreet, Spring-gardens*

Penton, Mr. George, *New-ſtreet-ſquare, Shoe-lane*

P Perin, William Philip, Eſq. F. R. and A. S. *Bloomſbury-ſquare*

Perring, John, Eſq. *New Broad-ſtreet*

Perry, John, Eſq. *Blackwall*

Perry, James, Eſq. *Lancaſter-court, Strand*

Perrott, George, Eſq. *Craycombe-houſe, Worceſter-ſhire*

Petrie, William, Eſq. M. P. F. R. and A. S. *Hertford-ſtreet, May-fair*

Petrie, John, Eſq. M. P. *Portland-place*

Phillips, John, Eſq. *Ely*

Phillips, Mr. Samuel, *St. George's-road, Black-friar's-bridge*

Pickering, Mr. Robert

Pitt, William Morton, Eſq. M. P. and F. R. S. *Arlington-ſtreet*

P††Pitt, Thomas, Eſq. V. P. F. A. S. *Wimpole-ſtreet*

Planta, Joſeph, Eſq. F. R. S. *Britiſh Muſeum*

Pollett, Mr. Robert, *North Weald, near Epping*

Pontopidan, Charles, Eſq. *Copenhagen*

Pope, William, Eſq. *Hillingdon, Middleſex*

P Portman, Edward Berkeley, Eſq. *Bryanſton, near Blandford, Dorſet*

Porter, William, Eſq. *Copthall-court, Throgmorton-ſtreet*

P Potter, Chriſtopher, Eſq. *Abroad*

Potter, George, Eſq. *Charing-croſs*

Pourcin,

Pourcin, Mr. Joſeph, No. 143, *Tottenham-court-road*
Powell, David, jun. Eſq. *Little St. Helen's*
Powell, John Clark, Eſq. *ditto*
††Powell, Arthur Annesley, Eſq. *Devonſhire-place*
Powlett, William Powlett, Eſq. M. P. *Sambourne, near Stockbridge*
Powney, Henry, Eſq. *Lamb's-conduit-ſtreet*
P Prado, Samuel, Eſq. *Robert-ſtreet, Adelphi*
Praed, William, Eſq. M. P. *Tyringham, Bucks*
Pratt, John, Eſq. *Lower Brook-ſtreet*
Preſton, Mr. Thomas, *Strand*
Pricket, Thomas, Eſq. *Wanſtead, Eſſex*
Pringle, Mark, Eſq. M. P. *Conduit-ſtreet*
Prinſep, John, Eſq. *Pall-mall*
Pryce, Benjamin, Eſq. *Saliſbury*
Pryce, Thomas, Eſq. *Devonſhire-ſtreet, Queen's-ſquare*
Pugh, David Heron, Eſq. *King-ſtreet, Cheapſide*

Q.

••Queenſberry, William Duke of, K. T.

R.

**Richmond, Charles Duke of, V. P. K. G. F. R. and A. S.
**Radnor, Jacob Earl of, V. P. F. R. and A. S.
••Romney, Charles Lord, V. P. and F. R. S.
* Roſebery, Niel Earl of, K. T.

 ††P Rancliffe,

††P Rancliffe, Thomas Boothby Lord, V.P. M.P. F.R. and A.S.
Ruvo, Ettore Carrafa, Count
* Ryder, the Right Honourable Dudley, M.P.
††Ridley, Sir Matthew White, Bart. M.P. *Portland-place*
††Raby, Alexander, Eſq. *Steel-yard, and Allhallows-lane*
Roe, John, Eſq. *Angel-court, Throgmorton-ſtreet*
P Ramey, John, Eſq. *Ormeſby, Norfolk*
††Ramſbottom, John, Eſq. *Alderſgate-ſtreet*
††Ramſbottom, Richard, Eſq. *ditto*
Randoll, Robert, Eſq. *Craven-ſtreet*
Raſtrick, Mr. John, *Morpeth*
Rawlinſon, Abraham, Eſq. *Lancaſter*
Rawlinſon, Thomas, Eſq. *ditto*
Reaſton, Francis Buſhell, Eſq. *Temple*
††Read, John, Eſq. *Great James-ſtreet, Bedford-row*
Read, Colonel Henry, *Lower Seymour-ſtreet*
Rehe, Mr. Thomas, *Shoe-lane*
Rees, the Rev. Abraham, D.D. F.R.S. *Hackney*
Reeves, John, Eſq. F.R. and A.S. *Cecil-ſtreet, Strand*
Reeves, Mr. William, *Strand*
Reid, Mr. John, *Fan-ſtreet, Alderſgate-ſtreet*
Remington, John, Eſq. *Milk-ſtreet, Cheapſide*
Rennie, Mr. John, *New-road, Blackfriars*
Repton, Humphrey, Eſq. *Hare-ſtreet, Eſſex*
Reynardſon, Samuel, Eſq. F.R. and A.S.
Reynolds, Major Thomas Vincent
Riddell, Colonel John, *Weymouth-ſtreet*

Rigg, John, jun. Eſq. *London-ſtreet*
Ring, Thomas, Eſq. *Reading, Berks*
Ritſon, Thomas, Eſq. *Ingram-court, Fenchurch-ſtreet*
Roberts, Rev. William Hancock, D.D. *Loughborough Houſe*
Robertſon, William, M.D. *Golden-ſquare*
Robertſon, James, M.D. F.R.S. *Ibbetſon's Hotel*
Robinſon, Samuel Wakefield, Eſq. *Vere-ſtreet, Cavendiſh-ſquare*
††Robinſon, George, Eſq. *Harpur-ſtreet*
P Robinſon, Thomas, Eſq. *Vere-ſtreet, Cavendiſh-ſquare*
Robins, Mr. John, *Warwick-ſtreet*
Robley, John, Eſq. *Stoke Newington*
Robſon, Mr. James, *New Bond-ſtreet*
Rodes, Cornelius Heathcote, Eſq. *Balborough, Derbyſhire*
Rondeau, James, Eſq. *No. 3, Sharter's-court, Throgmorton-ſtreet*
Roope, John, Eſq. *Yarmouth*
Roſe, George, Eſq. M.P. *Old Palace-yard*
Roſe, George Henry, Eſq. *ditto*
††Roſs, George, Eſq. *Balſarroch, North Britain*
P Roſs, Colonel Patrick, F.R. and A.S. *Harley-ſtreet*
Rowcroft, Thomas, Eſq. *Lawrence-Poulteney-lane*
Rowntree, Mr. Thomas, *Great Surry-ſtreet, Blackfriars*
Rucker, Daniel Henry, Eſq. *Broad-ſtreet, City*
Ruddle, Francis, Eſq. *Queen's-ſquare, Bloomſbury*
Ruffo, Monſieur Vincent, *Naples*

Ruggles

Ruggles, Thomas, Eſq. F. A. and L. S. *Clare, Suffolk*

Runqueſt, Peter Andrew, Eſq. *Bury-court, St. Mary Axe*

P Ruſſell, Jeſſe, Eſq. *Goodman's-fields*

Ruſſell, John, Eſq. R. A. *Newman-ſtreet*

Ruſſell, William, Eſq. *Berwick, Northumberland*

S.

* Shrewſbury, Charles Earl of

P Shafteſbury, Anthony Earl of, F. R. and A. S.

Scarborough, George Auguſtus Earl of

P Stanhope, Charles Earl of, F. R. S.

St. Vincent, John Earl

P Scarſdale, Nathaniel Lord

Stuart, the Honourable Charles, M. P.

P St. Aubyn, Sir John, Bart. F. R. and A. S. *Stratford-place*

Sheffield, Sir John, Bart. *Portland-place*

Smith, Sir John, Bart. F. R. and A. S. *Sydling, Dorſetſhire*

††Sinclair, Sir John, Bart. M. P. Preſident of the Board of Agriculture, F. R. and A. S. *Whitehall*

††Staunton, Sir George Leonard, Bart. LL. D, F. R. and L. S. *Devonſhire-ſtreet*

Stephens, Sir Philip, Bart. M. P. F. R. and A. S.

††Smith, Sir Sidney, Kt. Capt. R. N. Commander Grand Croſs of the Order of the Sword

††Smith, Major-General Edward

St. Barbe, John, Eſq. *Seething-lane*

Sadler,

Sadler, Jonathan, Eſq. *King's-arms-yard, Coleman-ſtreet*
Sanders, John, Eſq. *Mortlake, Surry*
Sargeaunt, Mr. John, *Great Queen-ſtreet*
Satterthwaite, Mr. John, *Mincing-lane*
Savage, Thomas, M. D. *Conduit-ſtreet*
Savage, Mr. James, *Great Queen-ſtreet*
Saunders, Thomas, Eſq. *Haydon-ſquare, Minories*
Saunders, Thomas, Eſq. *James-ſtreet, Golden-ſquare*
Saunders, Mr. George, F, A. S. *Oxford-ſtreet*
Saunders, Mr. Edward Grey, *Edgeware-road*
Sayer, Thomas, Eſq. *Bow, Middleſex*
Saxon, Mr. Samuel, *Parliament-ſtreet*
Schaw, Lieutenant Colonel John B. *Queen-Ann-ſtreet Eaſt*
Scholey, Mr. George, *Old-Swan-ſtairs*
P Scott, David, Eſq. *Devonſhire-place*
Scott, Robert, Eſq. *Groſvenor-ſquare*
Scott, Hugh, Eſq. *Harley-ſtreet, Cavendiſh-ſquare*
Scott, Mr. Thomas, *Ludgate-hill*
Seale, Mr. David, *Peckham*
Seddon, Mr. Thomas, *Alderſgate-ſtreet*
P Selby, Henry Collingwood, Eſq. *Twickenham-common, Middleſex*
Serra, Iſaac, Eſq. *King's-road, Gray's-inn-lane*
Sewell, Mr. John, *Cornhill*
Sewell, the Rev. George, *Byfleet, near Ripley, Surry*
Sewell, Mr. George, *London-ſtreet, Fitzroy-ſquare*
Shadwell, Henry, Eſq. *Beverley, Yorkſhire*
P Shakeſpeare, Mr. George, *Oxford-ſtreet*
††Sheldon, Thomas, Eſq. F. R. S. *Tottenham-court-road*

†Sheplee,

† Sheplee, Richard, Eſq. *Horſeydown*
Sheplee, Mr. Thomas, *ditto*
Sherſon, Robert, Eſq. F. A. S. *New Bridge-ſtreet, Blackfriars*
Shiffner, Godin, Eſq. *Weymouth-ſtreet, Portland-place*
P Shipley, Mr. William, Gent. *Maidſtone, Kent*
P Shore, Samuel, Eſq. *Norton-hall, Derbyſhire*
P Shore, Samuel, jun. Eſq. *Lincoln's-inn*
Sibley, Joſeph, Eſq. *Market-ſtreet, Herts*
Simpſon, Mr. Thomas, *Chelſea Water-works*
Simpken, Mr. Charles, *Oxford-ſtreet*
Simpkin, Mr. Thomas, *Strand*
Skinner, Thomas, Eſq. Alderman, *Alderſgate-ſtreet*
Skinner, William, Eſq. *Finſbury-ſquare*
P Skottow, Nicholas, Eſq. *Berners-ſtreet*
Slade, John, Eſq. *Hammerſmith*
Slade, Thomas Moore, Eſq. *Chatham*
Smart, Mr. George, *Cambden Town*
Smirnove, Rev. James, *Upper Mary-le-bone-ſtreet*
* Smith, George, Eſq.
† Smith, John Spencer, Eſq. *Abroad*
†† Smith, William, Eſq. *Lombard-ſtreet*
Smith, Samuel, Eſq. M. P. *Clapham*
Smith, William, Eſq. M. P. *Park-ſtreet*
Smith, Mr. John, *Lad-lane*
†† Smith, Joſhua, Eſq. M. P. *Great George-ſtreet, Weſtminſter*
Smith, Simmons Smith Joſhua, Eſq. *Batterſea, and Lamb's-conduit-ſtreet*

Smith,

Smith, Mr. Dedrick, *Gerard-ſtreet*
* Smith, Mr. Nathan, *Knightſbridge*
Smith, Captain William, of the Royal Navy
Smith, Henry, Eſq. *Drapers-hall*
Smith, Mr. Richard, *Crown-court, Cheapſide*
Smith, Mr. Edward, *Broad-ſtreet, City*
††Smith, George, Eſq. *Lombard-ſtreet*
Smith, Mr. John James, *Shoe-lane*
Smith, Eaglesfield, Eſq. *Great Queen-ſtreet*
Soane, John, Eſq. F. A. S. *Lincoln's-inn-fields*
Soley, Mr. Thomas Apreece, *Bloomſbury*
Songa, Anthony, Eſq.
Sparks, Mr. Robert, *St. John's-ſtreet*
Sparkes, Joſeph, Eſq. *Red-lion-ſquare*
Sparrow, Robert, Eſq. *Portland-place*
Spilſbury, Mr. William, *Snow-hill*
Spilſbury, Mr. Charles, *ditto*
Splitgerber, Mr. John Chriſtian, *Church-court, Walbrook*
Splitgerber, Mr. Frederick, *ditto*
Spottiſwood, John, Eſq. *Sackville-ſtreet*
Standen, the Reverend J. H. Rector of Murſton, *Kent*
Stanhope, Walter Spencer, Eſq. *Upper Groſvenor-ſtreet*
Stanley, George, Eſq. *Ponſonby-hall, Cumberland*
Stanley, John, Eſq. *Berners-ſtreet*
Steell, Robert, Eſq. *Finſbury-ſquare*
Steer, Charles, Eſq. *Church-ſtreet, Spitalfields*
P††Steers, John William, Eſq. F. A. S. *Inner Temple*

P Steers,

P Steers, James, Eſq. *Middle-Temple*

*††Stephens, Francis, Eſq. F. R. and A. S. V. P. Commiſſioner of the Victualling Office, *Adelphi*

Stevenſon, Thomas, M. D.

Stiff, Mr. Thomas, *New-ſtreet, Covent-garden*

Still, Mr. Samuel Stanford, *Bankſide, Southwark*

Stockwell, John, Eſq *Crutched-friars*

Stockdale, Mr. Jeremiah, *Holborn*

Stone, Mr. Thomas

††Stone, William, Eſq. *Old Ford, Middleſex*

Stonard, Nathaniel, Eſq. *Bow, Middleſex*

Storey, Robert, Eſq. *Bedford-ſquare*

Strachan, James, Eſq. *Mincing-lane*

† Strange, James, Eſq. M. P. *Hertford-ſtreet, Mayfair*

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INDEX.

A.

	Page
ACORNS, premiums offered for	4
premium given for	115, 119
price of cultivating	116
certificates of planting	120, 123
ADDRESS to the PUBLIC	3
AGRICULTURE, premiums in	4
Board of, present from	298
ALDER, premiums offered for	16
ANDERSON, Dr. present from	298
ANNATTO, premium for	105
ANSTRUTHER, Sir John, present from	296
ANTIQUARIES, Society of, present from	295
ASH, premiums offered for	17
premium given for	126
trees, number on an acre	127

B.

BARILLA, premium offered for	54
BARRETT, Miss Eliza, premium to	291
BATH Society, present from	296
BEANS and WHEAT, premium offered for	29
BEQUEST, form of	112
BHAUGULPORE Cotton, premium for	104
BIGLAND, Mr. William, present from	297
BILLINGSLY, John, Esq. premium to	172, 288

BLANCHERIE, Monſ. De La, preſent from 296
BLIGHTS, taking off, premiums for 26
See Fruit-trees
BLOCK TIN, premium for refining 67
BOEHM, Edmund, Eſq. his account of a Mole-plough 230, 233
BOLTS, premium for driving 87
for folding-doors 294
See Bullock
BORER, premium for deſtroying inſect called 102
BOTANIC GARDEN, premium for 103
BRAILSFORD, pariſh of, Land improved in 223
BREAD-FRUIT TREE, premium for 98
BROWNE, William, certificate ſigned 123
BROWNLOW, Lord, Gold Medal to 131, 287
BULLOCK, Mr. William, Thirty Guineas to 293
BUCKNALL, T. S. D. Eſq. paper from, on Orcharding, 144
BUNTING, Mr. Edward, Thirty Guineas to 268, 293

C.

CALLENDER-MILL improved 268
deſcription and plate of 269
CANDIDATES, notice to 107
CANDLES, premium offered for 58
CHAFF-CUTTER, improved 280
deſcription and plate of 281
advantages of 284
CHEMISTRY, premiums in 54
Paper in 235
CHESNUTS, premiums offered for raiſing 8
CHIMNEYS, premium for cleanſing 92
CINNAMON, premium for 96
CLOTH from Hop-ſtalks, premium for 83

CLOVES, premium for 97
COCHINEAL true, premium for 106
COLONIES, premiums offered for 95
CONDITIONS to Polite Arts 79
General 108, 111
CORN, harvesting in wet weather, premium for 36
COTTON, premium for black dye on 69
Bhaugulpore 104
COUNTIES, Surveys of, premiums for 76
CRANK, substitute for 271
CULLAND MOOR, account of improving 218
CURWEN, John Christian, Esq. Gold Medal to 115, 287

D.

DAVIS, Mr. George, Forty Guineas to 276, 293
Mr. Richard, Fifty Guineas to 291
DIBBLING. See Wheat
DRAINING LAND, premium given for 202
expence of 204
DRAWINGS, honorary premiums for 72, 73
of statues 74
outlines 75
landscapes 75
historical 76
DRY ROT, premium for preventing 63
DUBLIN Society, present from 296

E.

EAST-INDIA COMPANY, present from 297
ELM, premiums offered for 10
EVANS, Dr. present from 299

F.

FAIRMAN, Mr. extract of a letter from 145
FANSHAWE, Miss Elizabeth Christiana, Gold Medal to, 291
FEATHERS, premium for clearing 60
FIFE, Earl of, Thanks to 135
account of plantations
FLEWOOD, Rev. James, Gold Medal to 147, 289
FIR SILVER, premiums for 135, 143
FLY and CATERPILLARS, premiums for destroying 47
FOOT-LATHE improved 271
description and plate of 273
FOULDS, Mr. John, present from 299
FRUIT-TREES, preventing blights, premium for 25

G.

GIBBS, Mrs. Jane, premium adjudged to 237, 290
GLARING, premium offered for 67
GOOD, Mr. John Mason, Twenty-five Guineas to 292
GOONS, portable machine for loading 276
plate and description of 279
See Davis
GOODWIN, George, certificate signed 223
GRANTHAM, Lord, premium to 290
GRUB of COCKCHAFER, premium for destroying 48
GUNPOWDER MILLS, premium for securing 93

H.

HANBIN, Lieutenant, present from 297
HARPER, Mr. Henry, Silver Medal to 289
HAY, making in wet weather, premium for 35
HODGSON, Thomas, certificate signed by 118

Hoe, improved, premium for 48
Hooten, Mr. Thomas, preſent from 300
Horses, preventing turning about, premium for 90
Hoskins, Mr. Joſeph, premium to 202, 288

I.

Jones, Mr. Thomas, Gold Medal to 164, 288
his account of Rhubarb 165, 170
Iron, fine Bar, premium for 64
preſerving, premium for 69

K.

Kali for Barilla, premium for 100
Kilderbee, Samuel, Eſq. Silver Medal to 119, 287

L.

Land, barren, account of improvement of 195
expence and produce of 201
Draining. See Hoſkins
Land, gaining from the Sea, premium offered for 45
account of 148, 155
expence of 149
Land, lying waſte, premium for improving 41
premium adjudged for improving 172
mode and expence of improving, 174, 184
increaſed value of 184
Larch, premiums offered for 11
uſes of for the Navy 138
ſecured by the Empreſs of Ruſſia 138
Lathe, Foot, improved 271
plate and deſcription of 273

LINNEAN Society, preſent from 297
LORDS and LADIES, plant ſo called 239

M.

MACHINE for raiſing Coals, premium for 88
Water, premium for 89
MAJENDIE, Lewis, Eſq. Gold Medal to 126, 287
preſent from 300
MANUFACTURES, premiums for encouraging 82
MANURES, premiums offered for 42
MECHANICKS, premiums offered in 86
papers in 263
MEMBERS, Contributing, liſt of 309
MILL, pariſh or family, premium for 88
MODELS and MACHINES, Catalogue of 301
MOLE PLOUGH, Bounty given for 226
account of 227, 228
MONTGOMERIE, James, certificate ſigned 129

N.

NATURAL HISTORY, premiums for 78
NICHOLS, Mr. J. preſent from 296

O.

OAKLEY, William, Eſq. Gold Medal to 186, 289
OAKS, premiums for raiſing 5, 6
premium for, in compaſs forms 7
number of planted 117
account of raiſing ibid.
obſervations on tranſplanting 124, 125
tap-roots of changes its direction ibid.
OFFICERS, liſt of 305

ONION, Mr. preſent from 300
OPIUM, premium offered for 71
ORCHARDS, premiums offered for 20, 24
See Bucknall
OSIERS, premiums offered for 15
premium adjudged for 130
ſorts planted 132
number on an acre ibid.
length of ſhoots of 133
OXFORDSHIRE, Survey of 291

P.

PACKING-PRESS, improved 265
advantages of 266
deſcription of 267
PAINT, ſubſtitute for baſis of, premium for 66
PAYNE, J. certificate ſigned 240
PAPER from raw vegetables, premiums for 84
PARRY, Mr. Henry, Silver Medal to 290
PARSNEPS, premiums offered for 34
PASTE, ſtrong 248
PASSENGERS, premiums for preventing injury to 92
PEEK, Mr. John, Thirty Guineas to 265, 292
See Packing-preſs
PICTURES, method of transferring from boards or walls to canvaſs 243, 246, 260
aqua-fortis not uſed 260
what tools neceſſary for 261
PLANTING trees, trenching land for, recommended 127
POLITE ARTS, premiums for promoting 71.
POOR, Paper on maintaining 292
POTATOES, premium offered for 32
PRESENTS received, liſt of 295

PROOF SPIRIT, premium for 61
PRUNING, directions for 146
PYE, Mr. Charles, preſent from 298

R.

REWARDS, liſt of 285, 294
RHUBARB, premium offered for 37
account of culture and cure of 157, 170
premium given for the greateſt number of plants of 164
RIDLEY, Mr. Joſeph, Twenty Guineas to 271, 293
ROCKS, premium for boring 91
ROMNEY, Lord, preſent from 299
ROOTS and HERBAGE, premium offered for 33
ROYAL SOCIETY, preſent from 295

S.

SABATIER, Mr. preſent from 306
SALMON, Mr. Robert, Silver Pallet to 243, 292
his letters on transferring paintings 243, 262
Thirty Guineas to 280, 293
See Chaff-cutter
SALTED PROVISIONS, premium for preſerving 62
SCOTT, Mr. Adam, Thirty Guineas to 226, 290
cut of his mole-plough 234
SECRETARY, preſent from 299
SHEEP, cure of rot in, premium for 50
fly on, premium for 51
protecting, premium for 52
SILK, premiums for 82
machine for carding 82
SMIRKE, Mr. Robert, jun. Medallion to 291

SMOKE, deſtroying, premium for 56
condenſing, premium for 57
SOUGHS for draining 213
STARCH, from Arum Maculatum Vulgare 238
STEAM, increaſing, premium for 62
STILLINGFLEET, Rev. James, Gold Medal to 157, 288
SUGAR, from Treacle, premium for obtaining 55
SURVEYS. See Counties.

T.

TAMISIS ÆSTUARIUM, what ſo called 153
TIMBER-TREES, premiums offered for 19
ſecuring, premiums for 24
TODD, Mr. James, Silver Medal to 194, 289
TODD, Mr. John, Great Silver Pallet to 291
TODD, William, certificate ſigned by 133
TOTTON, Stevens, Eſq. preſent from 296
TRANSIT INSTRUMENT, premium offered for 86
TRENCHING Land recommended 128
TURNEPS, premium offered for 30

V.

VAN AKEN, Mr. preſent from 299
VAUGHAN, William, Eſq. preſent from 298
VEGETABLE FOOD, premium offered for 31
VEGETABLES, premium for preſerving ſeeds of 54
UPTON, Charles, Eſq. Silver Medal to 206, 288

W.

WASTE MOORS, premium for improving 43
account of improving 186, 194

WASTE MOORS, advanced value of 194
WATER MEADOWS, premium offered for 40
preſerving, premium for 56
purifying, premium for 68
preventing freezing in pipes 89
WATTS, Miſs Jemima, Silver Medal to 291
WESTON, J. W. Eſq. his account of Mr. Scott's Mole-plough 230
WHALE-OIL, premium for refining 59
WHALES, premium for taking 86
WHITE LEAD, premium for preparing 65
WHEAT, culture of, premium offered for 27, 28
machine for dibbling, premium for 46
reaping, premium for 47
WICKS for CANDLES, premiums for 84
WITHERALL, J. L. certificate ſigned 225
WIRE-WORM, premium for deſtroying 49
WYATT, John, Eſq. preſent from 298

Y.

YEAST, premium for ſubſtitute for 60

THE END.

DIRECTIONS TO THE BOOKBINDER.

Place the Print of William Benſon Earle, Eſq. as Frontiſpiece to the Volume.

Mr. Peck's Packing-preſs, to face page 267.

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Mr. Davis's Machine for Loading and Unloading Goods, to face page 278.

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FOR THE

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OF

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WITH THE

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M.DCC.XCVIII.

PREFACE.

AS the arrangement of the different ſubjects in the following pages continues as nearly as poſſible, the ſame with that in ſeveral of the former Volumes of theſe Tranſactions, it is needleſs to ſay any thing further on that head; we therefore proceed to enumerate ſome of the principal ſubjects that form the preſent Volume; and firſt, the matters for which Premiums have been firſt offered in the courſe of the preſent Seſſion. Among theſe, in the Claſs of Chemiſtry, will be found one for the diſcovery of a Red Pigment for Oil and Water Colours, equal in brilliancy, and ſuperior in point of durability, to any hitherto in uſe: of how much advantage the attainment of ſuch a Colour will prove to all artiſts in painting, is too obvious to

need any comments. Under the Claſs of Manufactures will be found Premiums, now firſt offered, for taking Porpoiſes, and extracting the Oil from them. It being well known that great devaſtation is continually made at the mouths of the principal rivers, as Thames, Severn, &c. by theſe voracious animals, on the Salmon and other fiſh, at the ſeaſon when they leave the ſalt water and come into the freſh to ſpawn; and it having alſo been ſaid, that in the northern parts of Europe conſiderable quantities of Oil are extracted from them; it was judged a proper object of the Society's attention to endeavour, by proper rewards, to ſtimulate our fiſhermen on the coaſts of Great Britain to inſtitute a Fiſhery for Porpoiſes, and thereby not only ſecure the fiſh that would otherwiſe be devoured by them, but alſo obtain an additional quantity of Oil, of which ſuch great abundance is conſumed in lamps, and a large proportion fetched from the ſouthernmoſt extremity of America.

Under

Under the Claſs of Mechanicks, the reader will find a Premium, now firſt offered, for a ſubject of great importance, no leſs than the diſcovery of a Quarry of Stone, fit for the purpoſe of Mill Stones, for grinding Wheat, and equal, in all reſpects, for that purpoſe, to that ſpecies of Stone univerſally known by the name of THE FRENCH BURR. Whoever adverts to the circumſtance of all the fine flour in this Country being ground by Stones hitherto ſuppoſed to be only procurable from France, and that no others are yet known, by which ſuch fine flour can be prepared, will readily allow the propriety of the Society's offering a handſome Reward for the diſcovery, in our own Country, of a material that will effectually anſwer ſo deſirable a purpoſe.

Although the Claims for the Premiums offered by the Society have not been, during this Seſſion, ſo numerous as in ſome former years, yet it is preſumed there will be found very conſiderable information and entertainment in the following pages. The Papers

of Mr. Davis and Mr. Phillips will throw great light on the manner of cultivating the different kinds of trees they ſeverally deſcribe; and the diſcriminating the different kinds of Oſiers, as laid down in the account given by the latter of thoſe Gentlemen, cannot fail being highly uſeful to all perſons who attend to the culture of Oſiers, of which vaſt quantities are continually in uſe, and the manufacturing of which into baſkets, &c. furniſhes employment to great numbers of induſtrious poor. The Papers alſo of Mr. Harper, Mr. Webſter, and Mr. Exter, will furniſh much uſeful information on the ſubjects treated by them.

In the Preface to the Fourteenth Volume of theſe Tranſactions mention was made of the advantage likely to accrue to the Kingdom at large from the ſpirit of improvement that appeared to be taking place in the more diſtant parts of the Country; and here it will alſo be ſeen, by the Papers of Mr. Peart, that the improving and cultivating Waſte Land, even among ſome of the

the moſt bleak mountains in the northern parts of England, is largely extending.

Mention has formerly been made of the advantages that, in all probability, will in future ariſe from the Culture of Rhubarb in this Country; and the Paper of Mr. Jones will prove that the growth of that uſeful plant is increaſing.

At a time when Botanical Studies are ſo much and ſo properly attended to, as they are at preſent in this Country, the diſcovery of ſome mode, whereby the Seeds of Plants may be transferred from one diſtant part of the globe to another, in a proper ſtate for vegetating, becomes an object of no ſmall conſideration; and the Society have, for many years paſt, continued to offer Premiums, in order to obtain ſome method of accompliſhing that end; but it will be found under the head of Chemiſtry (under which Claſs all the Premiums for this purpoſe have been offered), that, by a Paper received from John Sneyd, Eſq. of Belmont, in Staffordſhire, ſome trials have been made,

which promiſe to effect the buſineſs; and it may be here neceſſary to obſerve that, ſhould any perſon put in execution the hints given by Mr. Sneyd, it will be highly ſatisfactory to the Society to be informed of the reſult; and any information will alſo be thankfully received on the ſubject of the Paper from Mr. Brown, reſpecting the formation of Manure, inſerted under the ſame Claſs.

It has already been obſerved, both in the Fourteenth and Fifteenth Volumes of theſe Tranſactions, that Opium, of an excellent quality, has been collected from Poppies grown in England, and conſiderable Premiums have been offered for obtaining quantities of that uſeful drug: in order to furniſh every poſſible information towards obtaining that deſirable end, there is inſerted, in this Volume, an account of the method practiſed in India, with a cut of a ſimple Inſtrument, uſed by the natives, for making inciſions in the Poppy heads; this, it is believed, will forward, in a great degree,

gree, the intention of the Society on this ſubject.

Various attempts have been frequently made to diſcover, if poſſible, the manner of Painting practiſed by the beſt artiſts of the Venetian School, ſo as to produce ſuch a brilliancy, and at the ſame time ſuch an harmony of colouring, as form the genuine characteriſtic of thoſe artiſts. During this Seſſion ſome Papers on this ſubject have been ſubmitted to the Society's conſideration; and that part of them which more immediately relates to the mode of Colouring, is inſerted under the head of Polite Arts. How far it agrees with thoſe methods that have, within theſe few months, been told as ſecrets to ſome of our eminent artiſts, muſt be left to them to determine: certain it is, that Mr. Sheldrake, the Gentleman from whom theſe Papers were received, is uninformed of thoſe ſecrets, and has diſcovered this method of painting by dint of application and ſtudy; and ſome artiſts of conſiderable eminence, who were conſulted on the occa-

ſion,

ſion, agreed that Mr. Sheldrake's method of painting was not only different from that commonly practiſed, but an improvement of it. The other part of theſe Papers, which relates more particularly to the preparing of Oils and Varniſhes, and ſeems rather to relate to chemical proceſſes than thoſe branches that uſually come under the denomination of Polite Arts, will make a part of ſome future Volume of theſe Tranſactions.

In the following pages, under the Claſs of Mechanicks, will be found a very ingenious improvement of that kind of machine called a Mangle, which has of late years become of very general uſe in almoſt every family; and, under the idea of Patents having been granted for making them, they have been ſold at very exorbitant prices.

Here too will be ſeen an Eſcapement for Watches, contrived and executed by a very ingenious artiſt in a diſtant part of the kingdom; and however ſome parts of this Eſcapement may appear to bear a reſemblance

to

to what has been already in uſe for the ſame purpoſe, which in ſuch caſes may perhaps be unavoidable, yet, in the opinion of ſome of the moſt competent judges, the whole machine afforded ſuch marks of original genius in the perſon who produced it, as deſervedly entitled him to the Reward adjudged to him.

Every attempt to expedite and bring to perfection the Art of Ship-Building muſt univerſally be allowed a proper ſubject of the attention of this Society; and a Model of a very ingenious contrivance for drawing Bolts in and out of Ships, with more expedition and firmneſs than by the method hitherto practiſed, having been produced this Seſſion, the ingenious inventor has been honourably rewarded; and a complete Print, and Deſcription of it, is now given to the Public.

Beſides the repreſentations of the ſeveral Models in this Claſs, now publiſhed, it may not be improper to ſay, that the Models themſelves are reſerved in the Society's Repoſitories,

poſitories, for the inſpection and uſe of the Public.

Under the Claſs of Colonies and Trade, is inſerted a Letter from the ingenious and indefatigable Superintendant of the Botanic Garden in the Iſland of St. Vincent; in which Letter an account is given of the introduction and thriving ſtate of ſeveral uſeful Plants in that Garden, and, among others, of the ſucceſs that has attended the importation of the Bread-Fruit into that and other Iſlands in the Weſt Indies. Highly meritorious as it moſt aſſuredly was in Government to intereſt itſelf ſo much in the obtaining and tranſplanting that Fruit, yet it muſt be acknowledged that this Society, fully convinced of its utility, from what had been ſaid of it by all the voyagers to the South Sea, from the time of Dampier to Captain Cook, began ſo early as the year 1777 to offer Premiums, both honorary and pecuniary, to the perſon who ſhould firſt convey any of the Plants of the Bread-Fruit to England, in order to their being ſent to the

Weſt Indies; and although, when Government had intereſted itſelf in the obtaining that Tree, the Society judged it not neceſſary further to continue their pecuniary Reward, yet it is ſtill freſh in the memory of many Members, with how much pleaſure Capt. Bligh was received when he attended the anniverſary diſtribution of Rewards in the year 1794, and received the higheſt mark of honour in the power of the Society to beſtow, as a juſt tribute to his perſeverance and merit.

By the entertaining and inſtructive Letter received from Mr. Sievers, one of the Correſponding Members, who formerly reſided in England, it is evident that the benefits ariſing to mankind from this Society have not been wholly confined to this Country; for we have now learnt that the late Empreſs of Ruſſia, whoſe greatneſs of mind was apparent in all her conduct, having ſeen one of the Books of Premiums, annually publiſhed, eſtabliſhed a Society, ſimilar to this, in her dominions, which ſtill exiſts, and has

has been attended with great advantages. The Culture of Silkworms, which has often been conſidered as practicable, to advantage, in this Country, is alſo ſhewn, in Mr. Sievers's letter, to be carried on in climates more inhoſpitable than this; and the publication of what he ſays on that ſubject may probably tend to the making ſuch experiments as may prove the practicability of eſtabliſhing that buſineſs, or ſhew the futility of attempting it.

A circumſtance has occurred during the laſt Seſſion, which it is neceſſary the Public in general, and more particularly all thoſe who may intend to become Candidates for the Society's Rewards, ſhould attend to; it is this:—

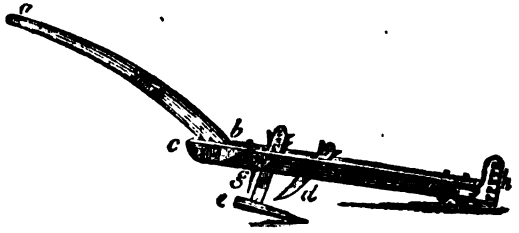
In the year 1797 a Bounty of Thirty Guineas was given to Mr. Adam Scott (ſee Vol. XV. page 226), for his invention of an Inſtrument, called by him a Mole-Plough, on condition of the Plough being left with the Society for the uſe of the Public; and

it was ſtated, that theſe Ploughs could be ſold in London at the price of Two Guineas and a half each. Many months had not elapſed, before an Inſtrument, very ſimilar in its conſtruction to that of Mr. Scott, was offered for ſale at the enormous price of Ten Guineas, under the idea of a Patent having been granted for the ſole making and vending ſuch Inſtrument; and it appeared, by a letter received from Mr. Scott, that he had himſelf acted as an agent in the ſale thereof. This induced the Society to reſolve, that Mr. Scott cannot, henceforward, be admitted a claimant for any Reward from them.

A Wood Cut of Mr. Scott's Plough, together with the Society's Advertiſement on the occaſion, is here inſerted.

Mr.

Mr. *ADAM SCOTT*'s MOLE-PLOUGH.



a, the handle, one only being uſed, as two were found unneceſſarily to increaſe the price of the Plough; this handle, which is in length ſix feet, is mortiſed into the beam at *b*:—*c*, the beam, ſix feet eleven inches long:—*d*, the coulter, fifteen inches long, and two and a half wide, wedged as uſual:—*e*, the cone or mole, made of caſt-iron, twenty inches long, and two and a half diameter at its baſe, having an upright piece of bar-iron, two feet long, and three inches and a half broad, with a ſharp edge, which, paſſing through the beam at *f*, is held faſt by wedges; and the pin *g*, being put through one of the holes in the bar, ſerves to regulate the depth of the cavity below the ſurface of the land, the lower ſide of the beam being in contact with the ground during the working.

THE Society for the Encouragement of Arts, Manufactures, and Commerce, in the year 1797, previous to the date of any Patent for ſuch an Inſtrument, gave a Bounty of Thirty Guineas to Mr. ADAM SCOTT, of Guildford, in Surrey, for his invention of a Machine for the purpoſe of under-draining Land, called by him a MOLE-PLOUGH, which Plough is reſerved in the Repoſitory of the Society for the inſpection and uſe of the Public; and a Print and Deſcription thereof has been publiſhed in the Fifteenth Volume of the Society's Tranſactions; and, in the opinion of experienced workmen, ſuch Ploughs can be made and ſold in London at the price of Two Guineas and a Half each.

The Society, therefore, in order to prevent any impoſition on the Public, by being compelled to purchaſe ſuch Ploughs at the enormous price of Ten Guineas, under the idea of a Patent having been obtained for the ſole making and vending them, think proper hereby to ſtate, that any perſon is at liberty to inſpect Mr. SCOTT's Plough, and take a Drawing or Model of it, for the purpoſe of making them, by applying to the proper Officer, at the Society's Houſe, any day, Sundays and Wedneſdays excepted, between the hours of ten and two.

There

There remains now only again to repeat, that the ingenious, of both ſexes, are invited to ſubmit their works and their inventions to the inſpection of the Society, from whom they will receive every attention and encouragement their merit may entitle them to, and thereby ſecure to themſelves not only honour and profit, in the preſent inſtance, but have alſo the pleaſing conſciouſneſs that their names will ſtand recorded to poſterity, among thoſe who have contributed to the increaſe of the Arts, the Manufactures, and the Commerce of their Country; from whence alone the intereſt, the riches, and the ſubſtantial and permanent glory of the Kingdom, can ariſe.

CONTENTS.

CONTENTS.

	Page
Preface	
Premiums offered in 1798	1—114
Papers in Agriculture	115
Papers in Chemiſtry	265
Papers in Polite Arts	279—299
Papers in Mechanicks	303
Rewards beſtowed	363
Preſents received	369
Catalogue of Models and Machines	375
Liſt of Officers	377
Liſt of Members	381
Index	435

ERRATUM.

For Mr. Alexander Anderſon, page 324, *read*
Alexander Anderſon, M.D. F.R.S. Ed.

PREMIUMS

OFFERED BY THE

SOCIETY

INSTITUTED AT LONDON,

FOR THE ENCOURAGEMENT OF

ARTS, MANUFACTURES,

AND

COMMERCE,

IN

THE YEAR M.DCC.XCVIII.

TO THE

PUBLIC.

ADELPHI-BUILDINGS,
April 13, 1798.

THE chief objects of the attention of the Society for the encouragement of Arts, Manufactures, and Commerce, in the application of their Rewards, are, ingenuity in the ſeveral branches of the POLITE and LIBERAL ARTS, uſeful Diſcoveries and Improvements in AGRICULTURE, MANUFACTURES, MECHANICKS, and CHEMISTRY, or the laying open any ſuch to the Public; and, in general, all ſuch uſeful Inventions, Diſcoveries, or Improvements (though not mentioned in the Book of Premiums), as may appear to have a tendency to the advantage of Trade and Commerce. The Society therefore, in purſuance of their plan, propoſe to beſtow the following Premiums.

Premiums for Planting and Huſbandry.

Claſs 1. ACORNS. For having ſet, between the firſt of October, 1797, and the firſt of April, 1798, the greateſt quantity of land, not leſs than ten acres, with Acorns, with or without ſeeds, cuttings, or plants of other trees, at the option of the Candidate; and for effectually fencing and preſerving the ſame, in order to raiſe timber; the GOLD MEDAL.

2. For the ſecond greateſt quantity of land, not leſs than five acres, ſet agreeably to the above conditions, the SILVER MEDAL.

CERTIFICATES of ſetting agreeably to the above conditions, and that there are not fewer than three hundred young Oaks on each acre, to be delivered to the Society on or before the firſt Tueſday in November, 1798.

3, 4. The ſame premiums are extended one year further.

CERTI-

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1799.

5, 6. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1800.

7, 8. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1801.

9. RAISING OAKS. To the perſon who ſhall have raiſed, ſince the year 1794, the greateſt number of Oaks, not fewer than five thouſand, either from young plants or acorns, in order to ſecure a ſucceſſion of oak timber in this kingdom; the GOLD MEDAL.

10. For the next greateſt number, not fewer than three thouſand, the SILVER MEDAL.

CERTIFICATES that there were on the land, at leaſt the number of young Oak-trees required, in a thriving condition, two years after the planting, with an account of the methods purſued in making and managing the plantation, to be produced to the Society on or before the firſt Tueſday in January, 1799.

11, 12. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1800.

13, 14. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1801.

15. ASCERTAINING THE BEST METHOD OF RAISING OAKS. To the perſon who ſhall aſcertain in the beſt manner, by actual experiments, the comparative merits of the different modes of raiſing

fing Oaks for timber, either from acorns ſet on land properly grubbed and tilled; from acorns ſown at random among buſhes, fern, or other cover; or from young plants, previouſly raiſed in nurſeries, and tranſplanted; regard being had to the expence, growth, and other reſpective advantages of the ſeveral methods; the GOLD MEDAL.

The ACCOUNTS and proper CERTIFICATES to be produced to the Society on or before the firſt Tueſday in November, 1798.

16. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in November, 1799.

17. OAK TIMBER IN COMPASS FORMS. To the perſon who ſhall aſcertain, by actual experiments, the beſt method of training young Oaks, ſo as to form Compaſs Timber for Ship-building, the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES of the number of Oak-plants, not fewer than one hundred, that have been trained; and that they promiſe, in the opinion of perſons experienced in ſhip-building, to anſwer the purpoſe intended; to be delivered to the Society on or before the laſt Tueſday in December, 1805.

It is required that with the Certificates there be ſent particular accounts of the age of the trees, when they were bugun to be trained, and the methods purſued in training them.

Should any perſon have already engaged in training Oaks for the above purpoſe, any information on the ſubject will be thankfully received by the Society.

18. CHESNUTS. For having ſown or ſet, between the firſt of October, 1797, and the firſt of April, 1798, the greateſt quantity of dry loamy land, not leſs than ſix acres, with Spaniſh Cheſnuts, with or without ſeeds, cuttings, or plants of other trees

trees adapted to ſuch ſoil, at the option of the Candidate; and for effectually fencing and preſerving the ſame, in order to raiſe timber; the GOLD MEDAL.

19. For the ſecond greateſt quantity, not leſs than four acres, the SILVER MEDAL.

CERTIFICATES of ſowing or ſetting agreeably to the above conditions, and that there are not fewer than three hundred Cheſnut plants, in a thriving ſtate, on each acre, to be delivered to the Society on or before the firſt Tueſday in November, 1798.

20, 21. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1799.

22, 23. The ſame premiums are extended one year further.

CER-

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1800.

24, 25. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1801.

26. ELM. For having planted the greateſt number of the Engliſh Elm, not leſs than eight thouſand, between the twenty-fourth of June, 1796, and the twenty-fourth of June, 1797; and for the having effectually fenced and preſerved the ſame, in order to raiſe timber; the GOLD MEDAL.

27. For the ſecond greateſt number, not leſs than five thouſand, the SILVER MEDAL.

CERTIFICATES of the having planted agreeably to the above conditions, that the plants were in a healthy and thriving ſtate

two years at leaſt after making the plantation, and ſpecifying the diſtance of the plants, to be delivered to the Society on or before the firſt Tueſday in April, 1799.

28, 29. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in April, 1800.

30, 31. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in April, 1801.

32, 33. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in April, 1802.

34. LARCH. For having planted out between the twenty-fourth of June, 1795, and the twenty-fourth of June, 1796, the greateſt

greateſt number of Larch-trees, not fewer than five thouſand; and for having effectually fenced and preſerved the ſame, in order to raiſe timber; the GOLD MEDAL.

35. For the next greateſt number, not fewer than three thouſand, the SILVER MEDAL.

CERTIFICATES of the number of plants, that they were in a healthy and thriving ſtate two years at leaſt after they were planted out, with a general account of the methods uſed in making the plantation, to be delivered to the Society on or before the laſt Tueſday in December, 1798.

36, 37. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1799.

38, 39. The ſame premiums are extended one year further.

CER-

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1800.

40, 41. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1801.

42, 43. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1802.

N. B. The Larch-trees may be either planted, mixed with other trees, or by themſelves, as may beſt ſuit the convenience of the planter.

44. SILVER FIR. For having planted out, between the twenty-fourth of June, 1794, and the twenty-fourth of June, 1795, in a mixed plantation of foreſt-trees, or ſeparate, according to the option of the Candidate, the greateſt number of Silver Firs,

Firs, not fewer than two thouſand; and for having effectually fenced and preſerved the ſame, in order to raiſe timber; the GOLD MEDAL.

45. For the next greateſt number, not fewer than one thouſand, the SILVER MEDAL.

CERTIFICATES of the number of plants, that they were in a healthy and thriving ſtate two years at leaſt after they were planted out, with a general account of the methods uſed in making the plantation, to be delivered to the Society on or before the laſt Tueſday in December, 1798.

46, 47. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1799.

48, 49. The ſame premiums are extended one year further.

CER-

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1800.

50. OSIERS. To the perſon who ſhall have planted, between the firſt of October, 1797, and the firſt of May, 1798, the greateſt quantity of land, not leſs than five acres, with thoſe kinds of Willows, commonly known by the names of Oſier, Spaniard, New-kind, or French, fit for the purpoſe of baſket-makers, not fewer than twelve thouſand plants on each acre; the GOLD MEDAL, or THIRTY GUINEAS.

51. For the ſecond greateſt quantity of land, not leſs than three acres, the SILVER MEDAL, or TEN GUINEAS.

CERTIFICATES of the planting, and that the plants were in a thriving ſtate five months at leaſt after the planting, to be produced to the Society on or before the laſt Tueſday in November, 1798.

52,

52, 53. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in November, 1799.

54. ALDER. For having planted, in the year 1795, the greateſt number of Alders, not leſs than three thouſand, the GOLD MEDAL.

CERTIFICATES of the number of plants, and that they were in a thriving ſtate two years at leaſt after being planted, to be delivered to the Society on or before the laſt Tueſday in December, 1798.

55. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1799.

56. The ſame premium is extended one year further.

CER-

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1800.

57. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1801.

58. ASH. For having ſown or ſet, in the year 1795, the greateſt quantity of land, not leſs than ſix acres, with Aſh for timber, with or without ſeeds, cuttings, or plants of ſuch other trees as are adapted to the ſoil; the GOLD MEDAL.

59. For the next greateſt quantity, not leſs than four acres, the SILVER MEDAL.

CERTIFICATES of the ſowing or ſetting agreeably to the above conditions; that there are not fewer than one hundred Aſh plants on each acre, in a thriving and

healthy condition, two years at leaſt after the ſowing or ſetting, with a general account of the methods uſed in making the plantation; to be delivered to the Society on or before the laſt Tueſday in December, 1798.

60, 61. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1799.

62, 63. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1800.

64, 65. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1801.

66,

66, 67. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1802.

68. TIMBER TREES. To the perſon who ſhall have encloſed, planted, or ſown, the greateſt number of acres, not leſs than ten, with the beſt ſorts of Foreſt-trees, adapted to the ſoil, for timber, between the firſt of October, 1794, and the firſt of May, 1796; the GOLD MEDAL.

An account of the methods uſed in making the plantations, and of the nature of the ſoil, together with proper CERTIFICATES that the trees were in a thriving and healthy ſtate two years at leaſt after making the plantation, to be delivered to the Society on or before the firſt Tueſday in November, 1798.

69. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in November, 1799.

70. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to to be delivered to the Society on or before the firſt Tueſday in November, 1800.

71. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in November, 1801.

N. B. With the above Foreſt-trees, the ſeeds, cuttings, or plants, of ſuch other trees as are adapted to the ſoil, and proper for underwood, may or may not be intermixed.

72. PLANTING ORCHARDS. To the perſon who ſhall plant an Orchard after the month of Auguſt in the year 1796, in

in the moſt judicious manner, not leſs than four acres; the GOLD MEDAL, or FIFTY GUINEAS.

73. For the next in merit, the SILVER MEDAL, or THIRTY GUINEAS.

The proof of the value of the improvement of the Orchard ſhall depend on the clear product of the greateſt quantity of fine marketable fruit, to be produced during three ſucceſſive years after the year 1812, and ſold at any public market in England or Wales. Each perſon who propoſes to become a Candidate for theſe Premiums muſt ſend an account of the number of trees, their culture, pruning, and every circumſtance which can in the leaſt throw any light on the ſubject; which information will be regiſtered, with a view to form a ſyſtem of rational culture.

74. And that Gentlemen may be induced to come forward, and make and preſerve ſuch plantations,—The perſon who can produce an ORCHARD which, at the end

of three years after planting, ſhall ſhew the greateſt promiſe of ſucceſs, ſhall be entitled to the GOLD MEDAL, or THIRTY GUINEAS.

The merits of the two firſt-mentioned Premiums being to be aſcertained by the fruit; the merit of the third Premium muſt be aſcertained by the judicious number of trees planted, the ſtraitneſs, clearneſs, and freedom of growth of the ſeveral trees; and that all the young branches run free, and at due diſtance from each other, without any galling or canker.

CERTIFICATES of the forming the Orchard, the ſoil and aſpect of the plantation, the ſale and product of the fruit for which the claims for the Premiums, Claſſes 72 and 73, are intended to be made, muſt be delivered to the Society on or before the firſt Tueſday in November, 1815; and the Certificate in claim of the Premium, Claſs 74, muſt be delivered to the Society on or before the firſt Tueſday in November, 1799.

N. B.

N. B. However expert the Orchardiſt may be in general information and attention, much will depend on ſoil, expoſure, culture, and an eaſy communication to convey the fruit to market; for every field, however valuable in other reſpects, may not be proper for an Orchard.

Any wood the Orchardiſt may chooſe to raiſe for ſhelter to ſuch plantation, is not to be meaſured as part of the Orchard, as the wood will more than ſupport its own expence.

75, 76, 77. The foregoing Premiums for Orchards, from Claſs 72 to Claſs 74, incluſive, are extended one year further. The claims for the Premiums, Claſs 72 and 73, to be delivered to the Society on or before the firſt Tueſday in November, 1816; and the Certificate in claim of the Premium, Claſs 74, muſt be delivered on or before the firſt Tueſday in November, 1800.

*** *The Candidates for planting all kinds of Trees are to certify, that the reſpective*

Plantations are properly fenced and ſecured, and particularly to ſtate the condition the plants were in at the time of ſigning ſuch Certificates.

Any information which the Candidates for the foregoing Premiums may chooſe to communicate, relative to the methods made uſe of in forming the Plantation, or promoting the growth of the ſeveral Trees, or any other obſervations that may have occurred on the ſubject, will be thankfully received.

78. SECURING PLANTATIONS OF TIMBER-TREES. To the perſon who ſhall give to the Society the moſt ſatisfactory Account, founded on experience, of the moſt effectual and leaſt expenſive method of ſecuring young plantations of timber-trees, from Hares and Rabbits, as well as Sheep and larger cattle, which at the ſame time ſhall be leaſt ſubject to the depredations of wood-ſtealers; the SILVER MEDAL, or TWENTY GUINEAS.

The

The ACCOUNTS and CERTIFICATES of the efficacy of the method, to be produced to the Society on or before the firſt Tueſday in November, 1798.

79. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in November, 1799.

80. PREVENTING THE BLIGHT ON FRUIT-TREES. To the perſon who ſhall diſcover to the Society the beſt and moſt effectual method of preventing the Blight on Fruit-trees, ſuperior to any hitherto known or practiſed, and verified by actual and comparative experiments; the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be delivered to the Society on or before the ſecond Tueſday in November, 1798.

81.

81. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1799.

82. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1800.

83. TAKING OFF THE ILL EFFECTS OF BLIGHTS. To the perſon who ſhall diſcover to the Society the beſt and moſt effectual method of taking off the ill effects of Blights on Fruit-trees, ſuperior to any hitherto known or practiſed, and verified by actual and comparative experiments; the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in February, 1799.

84.

84. COMPARATIVE CULTURE OF WHEAT. For the beſt ſet of experiments, made on not leſs than eight acres, four of which to be ſown broad-caſt, and four drilled, to aſcertain whether it is moſt advantageous to cultivate Wheat by ſowing it in the common broad-caſt way, or by drilling it in equidiſtant rows, hoeing the intervals; the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS.

It is required that an account of the expence attending each mode of culture, with proper CERTIFICATES of the nature and condition of the land on which the experiments are made, together with an account of the produce of the Corn, be produced to the Society on or before the firſt Tueſday in February, 1799.

85. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the firſt Tueſday in February, 1800.

86.

86. COMPARATIVE CULTURE OF WHEAT. For the beſt ſet of experiments, made on not leſs than eight acres of land, four of which to be ſown broad-caſt, and four dibbled, to aſcertain whether it is moſt advantageous to cultivate Wheat by ſowing it in the common broad-caſt way, or by dibbling it in equidiſtant rows, hoeing the intervals; the GOLD MEDAL, or the SILVER MEDAL and THIRTY GUINEAS.

It is required that an account of the expence attending each mode of culture, with proper Certificates of the nature and condition of the land on which the experiments are made, together with an account of the produce of the Corn, be produced to the Society on or before the firſt Tueſday in February, 1799.

87. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the firſt Tueſday in February, 1800.

88.

88. BEANS AND WHEAT. To the perſon who ſhall have planted or drilled, between the firſt of December, 1796, and the firſt of April, 1797, the greateſt quantity of land, not leſs than ten acres, with Beans, and ſhall have ſown the ſame land with Wheat in the ſame year 1797; TWENTY GUINEAS.

It is required that an account of the ſort and quantity of Beans, the time of planting or drilling, and of reaping or mowing them, the produce per acre threſhed, the application of the ſtraw, the expence of planting or drilling, hand or horſe hoeing, the diſtance of the rows, and the quality of the ſoil, together with CERTIFICATES of the number of acres, and that the land was actually ſown with Wheat in the year 1797, be produced on or before the firſt Tueſday in November, 1798.

N. B. The Society have been informed, that Beans may be drilled or planted ſo early as the month of December, from whence may be derived the advantage of an early harveſt;

harveſt; in which caſe the ſtraw will be far more valuable than that from a later planting or drilling.

89. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the firſt Tueſday in November, 1799.

90. TURNEPS. For the beſt account of experiments made on at leaſt ſix acres of land, to determine the comparative advantage of the drill or broad-caſt method in the cultivation of Turneps; the GOLD MEDAL, or the SILVER MEDAL and TEN GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be delivered on or before the third Tueſday in March, 1799.

It is required that one half of the land be drilled, and the other half ſown broad-caſt.

91.

91. VEGETABLE FOOD. For the beſt account, confirmed by experiments, of the Vegetable Food (Cabbages and Turneps excepted), growing in the months of March and April, that will moſt increaſe the milk in Mares, Cows, and Ewes, at that ſeaſon; provided ſuch food can be cultivated at an expence that will admit of its being applied to the above purpoſes; the GOLD MEDAL, or the SILVER MEDAL and TEN GUINEAS.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1798.

92. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1799.

93. POTATOES FOR FEEDING CATTLE AND SHEEP. To the perſon who, in the year 1797, ſhall have cultivated the greateſt quantity of land, not leſs

leſs than four acres, with Potatoes, for the purpoſe of feeding Cattle and Sheep; the GOLD MEDAL, or THIRTY GUINEAS.

CERTIFICATES, with ſatisfactory Accounts of the expence and manner of cultivating the Potatoes, and the application of them to the above purpoſes only, and the ſucceſs that has attended the uſe of them, to be delivered to the Society on or before the ſecond Tueſday in November, 1798.

N. B. Should any Gentleman have already cultivated Potatoes for the purpoſes mentioned in the above advertiſement, any information from him on the ſubject will be thankfully received by the Society.

94. CULTIVATING ROOTS AND HERBAGE FOR FEEDING SHEEP AND BLACK CATTLE. For the moſt ſatisfactory experiments, made between Michaelmas, 1797, and the firſt of May, 1798, in order to aſcertain which of the following plants

plants can be cultivated and houſed or otherwiſe ſecured for winter-fodder, to the greateſt advantage, viz.

Turnep-rooted Cabbage,	Carrots,
Turnep Cabbage,	Parſneps,
Turneps,	Potatoes;

the GOLD MEDAL.

The ACCOUNTS, with proper Certificates, to be produced on or before the firſt Tueſday in November, 1798.

It is required that the above roots be taken off the land by the laſt day of October, 1797; that a crop of Wheat may be ſown in the ſame ground, and the particulars of the ſowing and planting, taking up, produce, preſerving, and application to the feeding Sheep and Black Cattle, be ſpecified. The comparative experiments muſt be made between two or more of any of the above-mentioned plants, and not leſs than one acre be cultivated with each particular kind of plant.

N. B. Great advantage will ariſe to the Farmer occupying land in the neighbourhood of extenſive commons, from the conveniency of keeping large flocks of Sheep, and herds of Cattle, if the difficulty of ſupporting them through the winter was obviated by a due knowledge of this practice.

95. PARSNEPS. To the perſon, who, in the year 1798, ſhall cultivate the greateſt quantity of land, not leſs than five acres, with Parſneps, for the ſole purpoſe of feeding Cattle or Sheep; the GOLD MEDAL, or THIRTY GUINEAS.

CERTIFICATES of the quantity of land ſo cultivated, with a particular account of the nature and quality of the ſoil and produce, and alſo of the condition of the Cattle or Sheep fed with the Parſneps, and the advantages reſulting from the practice, to be produced to the Society on or before the ſecond Tueſday in February, 1799.

96. The ſame premium is extended one year further.

The

The CERTIFICATES and ACCOUNTS to be produced on or before the ſecond Tueſday in February, 1800.

97. MAKING HAY IN WET WEATHER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, ſuperior to any hitherto practiſed, of making Hay in wet weather, the GOLD MEDAL, or THIRTY GUINEAS.

A full account of the method employed, and of the expence attending the proceſs, with not leſs than fifty-ſix pounds of the Hay; and Certificates that at leaſt the produce of ſix acres of land has been made according to the method deſcribed, and that the whole is of equal quality with the ſamples; to be produced on or before the firſt Tueſday in January, 1799.

98. HARVESTING CORN IN WET WEATHER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, ſuperior to any hitherto

practiſed, of harveſting Corn in Wet Weather, the GOLD MEDAL, or THIRTY GUINEAS.

A full account of the method employed, and of the expence attending the proceſs, with not leſs than two Sheaves of the Corn, and Certificates that at leaſt the produce of four acres has been harveſted according to the method deſcribed, and that the whole is of equal quality with the ſamples, to be produced on or before the firſt Tueſday in January, 1799.

99. CULTIVATING THE TRUE RHUBARB. For having raiſed, before the end of the year 1798, the greateſt number of plants, not leſs than two thouſand, of Rheum Palmatum, or true Rhubarb, the GOLD MEDAL, or THIRTY GUINEAS.

CERTIFICATES of the number of plants, that they ſtand at leaſt four feet aſunder, that they have been in a thriving ſtate during the preceding ſummer, with an account of

of the ſoil, culture, and aſpect, to be produced on or before the ſecond Tueſday in February, 1799.

100. The ſame premium is extended one year further.

The CERTIFICATES to be produced on or before the ſecond Tueſday in February, 1800.

101. ASCERTAINING THE COMPONENT PARTS OF ARABLE LAND. To the perſon who ſhall produce to the Society the moſt ſatisfactory ſet of experiments, to aſcertain the due proportion of the ſeveral component parts of Arable Land, in one or more Counties in Great Britain, by an accurate analyſis of it; and who, having made a like analyſis of ſome poor land, ſhall, by comparing the component parts of each, and thereby aſcertaining the deficiencies in the poor ſoil, improve a quantity of it, not leſs than one acre, by the addition of ſuch parts as the former ex-

periments ſhall have diſcovered to be wanting therein, and therefore probably the cauſe of its ſterility; the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the manurings, ploughings, and crops of the improved land, be the ſame after the improvement as before; and that a minute account of the produce in each ſtate, of the weather, and of the various influencing circumſtances, together with the method made uſe of in analyſing the ſoils, be produced, with proper CERTIFICATES, and the chemical reſults of the analyſis, which are to remain the property of the Society, on or before the laſt Tueſday in November, 1798.

It is expected that a quantity, not leſs than ſix pounds, of the rich, of the poor, and of the improved ſoils, be produced, with the Certificates.

N. B. Among the methods or proceſſes made uſe of by Chemiſts, and called DRY or MOIST, the latter only appears adapted to

to the aſcertaining the reſpective proportions of the component parts of Arable earth. Dr. Shaw, in his Chemical Lectures; Dr. Home, in his Principles of Agriculture; Dr. George Fordyce, in his Elements of Agriculture; and Sir Torbern Bergman, in his "Diſſertation ſur les Terres Géoponiques;" have treated on theſe ſubjects.

102. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the laſt Tueſday in November, 1799.

103. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the laſt Tueſday in November, 1800.

104. IMPROVING LAND LYING WASTE. For the moſt ſatisfactory Ac-

count of the beſt method of improving any of the following ſoils, being land lying waſte or uncultivated, viz. Clay, Gravel, Sand, Chalk, Moor or Peat-earth and Bog; verified by experiments on not leſs than fifty acres of land; the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS.

105. For the next greateſt quantity of land, not leſs than twenty-five acres, the SILVER MEDAL and TEN GUINEAS.

To be produced, with proper CERTIFICATES, on or before the ſecond Tueſday in December, 1798.

The ſoil, manner of improvement, expence, and product, together with an account of the uſes the improved land has been applied to, are required to be fully explained.

106, 107. The ſame premiums are extended one year further.

The

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1799.

108, 109. The ſame premiums are extended one year further.

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1800.

110. MANURES. For the moſt ſatisfactory ſet of experiments, to aſcertain the comparative advantages of the following Manures, uſed as Top-dreſſings, on Graſs or Corn Land, viz. Soot, Coal-Aſhes, Wood-Aſhes, Lime, Gypſum, Night-ſoil; the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS.

It is required that the above experiments be made between two or more of the above-mentioned Manures, and that not leſs than two acres of land be dreſſed with each Manure. An account of the nature of the ſoil,

ſoil, quantity and expence of the Manure, and crops, with CERTIFICATES, to be produced on or before the laſt Tueſday in February, 1799.

111. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the laſt Tueſday in February, 1800.

112. IMPROVING WASTE MOORS. For the improvement of the greateſt number of acres of Waſte Moor-Land, not leſs than one hundred, the GOLD MEDAL.

It is required that the land before improvement be abſolutely uncultivated, and in a great meaſure uſeleſs; that in its improved ſtate it be incloſed, cultivated, and divided into fields, ſufficient for the uſe and occupation of a tenant.

CERTIFICATES of the number of acres, of the quality of the Moor ſo improved, of the

the mode and expence of the improvement, the ſtate it is in as to the proportion of graſs to arable, and the average value thereof, to be produced on or before the firſt Tueſday in February, 1799.

113. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in February, 1800.

114. The ſame premium is extended one year further,

CERTIFICATES to be produced on or before the firſt Tueſday in February, 1801.

115. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in February, 1802.

116. GAINING LAND FROM THE SEA. To the perſon who ſhall produce to the

the Society an account of the beſt method, verified by actual experiment, of gaining Land from the Sea, not leſs than twenty acres, on the coaſt of England or Wales, the GOLD MEDAL.

CERTIFICATES of the quantity of Land, and that the experiments were begun after the firſt of January, 1793, to be produced to the Society on or before the firſt Tueſday in October, 1798.

N. B. The Society have been credibly informed, that land has been gained on the coaſt of Holland, by fixing rows of whiſps of ſtraw upright in the ſand, at about a foot diſtant from each other, or by fixing ſtakes at proper diſtances from each other, and wattling ſtraw-bands between them.

117. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1799.

118. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1800.

119. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1801.

120. MACHINE FOR DIBBLING WHEAT. To the perſon who ſhall invent the beſt Machine, to anſwer the purpoſe of Dibbling Wheat, by which the holes for receiving the grain may be made at equal diſtances and proper depths, the grain regularly delivered therein, and effectually covered; the SILVER MEDAL, or TWENTY GUINEAS.

The MACHINE, with CERTIFICATES that at leaſt three acres have been dibbled by it, to be produced to the Society on or before the ſecond Tueſday in January, 1799.

Simplicity

Simplicity and cheapneſs in the conſtruction will be conſidered as principal parts of its merit.

121. MACHINE TO ANSWER THE PURPOSE OF REAPING OR MOWING CORN. For inventing a Machine to anſwer the purpoſe of mowing or reaping Wheat, Rye, Barley, Oats, or Beans, by which it may be done more expeditiouſly and cheaper than by any method now practiſed, provided it does not ſhed the corn or pulſe more than the methods in common practice, and that it lays the ſtraw in ſuch a manner as that it may be eaſily gathered up for binding; the SILVER MEDAL, or TEN GUINEAS.

The MACHINE, with CERTIFICATES that at leaſt three acres have been cut by it, to be produced to the Society on or before the ſecond Tueſday in December, 1798. Simplicity and cheapneſs in the conſtruction will be conſidered as principal parts of its merit.

122.

122. DESTROYING THE GRUB OF THE COCKCHAFER. To the perſon who ſhall diſcover to the Society an effectual method, verified by repeated and ſatisfactory trials, of deſtroying the Grub of the Cockchafer, or of preventing or checking the deſtructive effects which always attend Corn, Peas, Beans, and Turneps, when attacked by thoſe inſects; the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be produced on or before the firſt Tueſday in January, 1799.

123. DESTROYING THE WIRE-WORM. To the perſon who ſhall diſcover to the Society an effectual method, verified by repeated and ſatisfactory trials, of deſtroying the Inſect called the Wire-worm, or of preventing or checking the deſtructive effects which always attend Corn, Beans, Peaſe, or Pulſe, when attacked by thoſe inſects; the GOLD MEDAL, or THIRTY GUINEAS.

The

The ACCOUNTS, with proper CERTIFICATES, to be produced to the Society on or before the firſt Tueſday in January, 1799.

124. DESTROYING THE FLY ON HOPS, AND CATERPILLARS ON FRUIT-TREES AND CULINARY PLANTS. To the perſon who ſhall diſcover to the Society an eaſy and efficacious method of deſtroying the Fly on Hops, and Caterpillars on Fruit-trees and culinary plants, ſuperior to any hitherto known or practiſed, the GOLD MEDAL, or THIRTY GUINEAS.

ACCOUNTS and CERTIFICATES, that the method has been effectually practiſed, on not leſs than ſix acres of Hop-ground, or an Orchard or Garden of not leſs than two acres, to be delivered to the Society on or before the firſt Tueſday in February, 1799.

125. CURE OF THE ROT IN SHEEP. To the perſon who ſhall diſcover

cover to the Society the beſt and moſt effectual method of preventing or curing the diſeaſe called the Rot in Sheep, verified by repeated and ſatisfactory experiments, the GOLD MEDAL, or THIRTY GUINEAS.

It is expected that the Candidates furniſh accurate accounts of the nature, ſymptoms, and cure of the diſeaſe, together with the imputed cauſe thereof, and the actual or probable means of prevention, which, with proper CERTIFICATES, muſt be delivered to the Society on or before the firſt Tueſday in February, 1799.

126. PREVENTING AND CURING THE ILL EFFECTS OF THE FLY ON SHEEP. To the perſon who ſhall diſcover to the Society the moſt effectual method of preventing and curing the ill effects of the Fly on Sheep, the SILVER MEDAL, or TWENTY GUINEAS.

It is required that the method be aſcertained by repeated experiments, and that a CERTIFICATE of its efficacy be delivered

to the Society on or before the firſt Tueſday in December, 1798.

127. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in December, 1799.

128. PROTECTING SHEEP. To the perſon who, in the year 1798, ſhall protect the greateſt number of Sheep, not fewer than five hundred, in bad ſeaſons, by houſing them in hovels or ſheds; and give the moſt ſatisfactory account, verified by experiment, of the advantages ariſing from the practice of defending Sheep from the inclemency of the weather, by ſuch hovels, or ſheds; TWENTY GUINEAS.

A particular account of the experiments made, with the advantages ariſing therefrom, together with the expence, and CERTIFICATES of its utility, to be produced to the Society

Society on or before the firſt Tueſday in March, 1799.

129. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the firſt Tueſday in March, 1800.

N. B. It is at the option of the Candidates to have their hovels fixed, or moveable; and it is required, that the CERTIFICATES ſhall ſpecify the length of time the Sheep were under cover, and the manner in which they were maintained during that time; together with the general method of managing them in the ſaid hovels.

Premiums for Diſcoveries and Improvements in Chemiſtry, Dying, and Mineralogy.

130. BARILLA. For the greateſt quantity of Merchantable Barilla, not leſs than half a ton, made from Spaniſh Kali, or any other plant raiſed in Great Britain; the GOLD MEDAL, or THIRTY GUINEAS.

A ſample, of not leſs than twenty-eight pounds; with a CERTIFICATE that half a ton has been made, to be produced on or before the firſt Tueſday in January, 1799.

131. PRESERVING SEEDS OF VEGETABLES. For the beſt method of preſerving the ſeeds of Plants, in a ſtate fit for vegetation, a longer time than has hitherto been practiſed, ſuch method being ſuperior to any known to the public, and verified by ſufficient trial; to be communicated to the Society on or before the firſt Tueſday in December, 1798; the GOLD MEDAL, or THIRTY GUINEAS.

132. The ſame premium is extended one year further; the ACCOUNTS to be produced on or before the firſt Tueſday in December, 1799.

133. METHOD OF SEPARATING THE SACCHARINE SUBSTANCE OF TREACLE IN A SOLID FORM. To the perſon who ſhall diſcover to the Society the beſt method of ſeparating the Saccharine Subſtance of Treacle in a ſolid form, at ſuch an expence as will render it advantageous to the public; the GOLD MEDAL, or FIFTY GUINEAS.

A quantity of the Saccharine Subſtance, ſo ſeparated, in a ſolid form, not leſs than thirty pounds weight, with an account of the proceſs, and CERTIFICATES that not leſs than one hundred weight has been prepared, to be produced to the Society on or before the firſt Tueſday in February, 1799.

134. PRESERVING FRESH-WATER SWEET. To the perſon who ſhall

produce to the Society the beſt account, verified by ſatisfactory trials, of an efficacious method of preſerving Freſh-water ſweet during long voyages; the GOLD MEDAL, or FIFTY GUINEAS.

ACCOUNTS, and full deſcriptions of the methods made uſe of, in order that it may be known that nothing injurious enters therein, to be produced to the Society, with at leaſt thirty gallons of Water ſo preſerved, and proper CERTIFICATES, on or before the laſt Tueſday in December, 1798.

135. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the laſt Tueſday in December, 1799.

136. PURIFYING BRACKISH WATER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, verified by actual experiment, of Purifying

or

or reducing Brackiſh Water, which frequently ariſes from New Wells, made in particular places, to a natural ſweetneſs, fit for the uſe of families and for the purpoſe of cattle; the SILVER MEDAL, and FIFTEEN GUINEAS.

Satisfactory CERTIFICATES that ſuch Brackiſh Water has been rendered perfectly ſweet, and uſed by the family to which ſuch Well may belong at leaſt three months afterwards, with an account of the method made uſe of in purifying the ſame, to be delivered to the Society on or before the ſecond Tueſday in February, 1799.

137. DESTROYING SMOKE. For the beſt account, aſcertained by proper experiments, of a cheap method of deſtroying or burning the Smoke of Fires belonging to Steam-Engines, Furnaces employed in calcining or ſmelting Metals, or other large works, in order to prevent annoyance to the neighbourhood; to be produced on or

The ACCOUNTS, with proper CERTIFICATES, to be produced to the Society on or before the firſt Tueſday in January, 1799.

124. DESTROYING THE FLY ON HOPS, AND CATERPILLARS ON FRUIT-TREES AND CULINARY PLANTS. To the perſon who ſhall diſcover to the Society an eaſy and efficacious method of deſtroying the Fly on Hops, and Caterpillars on Fruit-trees and culinary plants, ſuperior to any hitherto known or practiſed, the GOLD MEDAL, or THIRTY GUINEAS.

ACCOUNTS and CERTIFICATES, that the method has been effectually practiſed, on not leſs than ſix acres of Hop-ground, or an Orchard or Garden of not leſs than two acres, to be delivered to the Society on or before the firſt Tueſday in February, 1799.

125. CURE OF THE ROT IN SHEEP. To the perſon who ſhall diſcover

cover to the Society the beſt and moſt effectual method of preventing or curing the diſeaſe called the Rot in Sheep, verified by repeated and ſatisfactory experiments, the GOLD MEDAL, or THIRTY GUINEAS.

It is expected that the Candidates furniſh accurate accounts of the nature, ſymptoms, and cure of the diſeaſe, together with the imputed cauſe thereof, and the actual or probable means of prevention, which, with proper CERTIFICATES, muſt be delivered to the Society on or before the firſt Tueſday in February, 1799.

126. PREVENTING AND CURING THE ILL EFFECTS OF THE FLY ON SHEEP. To the perſon who ſhall diſcover to the Society the moſt effectual method of preventing and curing the ill effects of the Fly on Sheep, the SILVER MEDAL, or TWENTY GUINEAS.

It is required that the method be aſcertained by repeated experiments, and that a CERTIFICATE of its efficacy be delivered

to the Society on or before the firſt Tueſday in December, 1798.

127. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in December, 1799.

128. PROTECTING SHEEP. To the perſon who, in the year 1798, ſhall protect the greateſt number of Sheep, not fewer than five hundred, in bad ſeaſons, by houſing them in hovels or ſheds; and give the moſt ſatisfactory account, verified by experiment, of the advantages ariſing from the practice of defending Sheep from the inclemency of the weather, by ſuch hovels, or ſheds; TWENTY GUINEAS.

A particular account of the experiments made, with the advantages ariſing therefrom, together with the expence, and CERTIFICATES of its utility, to be produced to the Society

Society on or before the firſt Tueſday in March, 1799.

129. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the firſt Tueſday in March, 1800.

N. B. It is at the option of the Candidates to have their hovels fixed, or moveable; and it is required, that the CERTIFICATES ſhall ſpecify the length of time the Sheep were under cover, and the manner in which they were maintained during that time; together with the general method of managing them in the ſaid hovels.

Premiums for Diſcoveries and Improvements in Chemiſtry, Dying, and Mineralogy.

130. BARILLA. For the greateſt quantity of Merchantable Barilla, not leſs than half a ton, made from Spaniſh Kali, or any other plant raiſed in Great Britain; the GOLD MEDAL, or THIRTY GUINEAS.

A ſample, of not leſs than twenty-eight pounds, with a CERTIFICATE that half a ton has been made, to be produced on or before the firſt Tueſday in January, 1799.

131. PRESERVING SEEDS OF VEGETABLES. For the beſt method of preſerving the ſeeds of Plants, in a ſtate fit for vegetation, a longer time than has hitherto been practiſed, ſuch method being ſuperior to any known to the public, and verified by ſufficient trial; to be communicated to the Society on or before the firſt Tueſday in December, 1798; the GOLD MEDAL, or THIRTY GUINEAS.

132.

132. The ſame premium is extended one year further; the ACCOUNTS to be produced on or before the firſt Tueſday in December, 1799.

133. METHOD OF SEPARATING THE SACCHARINE SUBSTANCE OF TREACLE IN A SOLID FORM. To the perſon who ſhall diſcover to the Society the beſt method of ſeparating the Saccharine Subſtance of Treacle in a ſolid form, at ſuch an expence as will render it advantageous to the public; the GOLD MEDAL, or FIFTY GUINEAS.

A quantity of the Saccharine Subſtance, ſo ſeparated, in a ſolid form, not leſs than thirty pounds weight, with an account of the proceſs, and CERTIFICATES that not leſs than one hundred weight has been prepared, to be produced to the Society on or before the firſt Tueſday in February, 1799.

134. PRESERVING FRESH-WATER SWEET. To the perſon who ſhall

produce to the Society the beſt account, verified by ſatisfactory trials, of an efficacious method of preſerving Freſh-water ſweet during long voyages; the GOLD MEDAL, or FIFTY GUINEAS.

ACCOUNTS, and full deſcriptions of the methods made uſe of, in order that it may be known that nothing injurious enters therein, to be produced to the Society, with at leaſt thirty gallons of Water ſo preſerved, and proper CERTIFICATES, on or before the laſt Tueſday in December, 1798.

135. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the laſt Tueſday in December, 1799.

136. PURIFYING BRACKISH WATER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, verified by actual experiment, of Purifying

or

or reducing Brackiſh Water, which frequently ariſes from New Wells, made in particular places, to a natural ſweetneſs, fit for the uſe of families and for the purpoſe of cattle; the SILVER MEDAL, and FIFTEEN GUINEAS.

Satisfactory CERTIFICATES that ſuch Brackiſh Water has been rendered perfectly ſweet, and uſed by the family to which ſuch Well may belong at leaſt three months afterwards, with an account of the method made uſe of in purifying the ſame, to be delivered to the Society on or before the ſecond Tueſday in February, 1799.

137. DESTROYING SMOKE. For the beſt account, aſcertained by proper experiments, of a cheap method of deſtroying or burning the Smoke of Fires belonging to Steam-Engines, Furnaces employed in calcining or ſmelting Metals, or other large works, in order to prevent annoyance to the neighbourhood; to be produced on or

before the firſt Tueſday in January, 1799; the GOLD MEDAL, or THIRTY GUINEAS.

138. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the firſt Tueſday in January, 1800.

139. CONDENSING SMOKE. To the perſon who ſhall invent the beſt method by which the Smoke of Steam-Engines, Brewhouſes, Sugar-houſes, or Furnaces, may be advantageouſly condenſed and collected in the form of Tar, or ſome other uſeful material; the GOLD MEDAL, or FIFTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES of the method having been ſucceſsfully employed, and ſpecimens of the materials produced, to be delivered to the Society on or before the firſt Tueſday in December, 1798.

140.

140. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in December, 1799.

141. CANDLES FROM RESIN OR OTHER SUBSTANCE. To the perſon who ſhall diſcover to the Society the beſt method of making Candles of Reſin, or any other ſubſtance, fit for common uſe, at a price much inferior to thoſe made of Tallow only; the GOLD MEDAL, or THIRTY GUINEAS.

Six pounds at leaſt of the Candles ſo prepared, with an ACCOUNT of the proceſs, to be delivered to the Society on or before the firſt Tueſday in December, 1798.

142. REFINING WHALE OR SEAL OIL. For diſcloſing to the Society an effectual method of purifying Whale or Seal Oil from the glutinous matter that encruſts

cruſts the wicks of lamps, and extinguiſhes the light, though fully ſupplied with oil; the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the whole of the proceſs be fully and fairly diſcloſed, in order that ſatisfactory experiments may be made by the Society to determine the validity of the claim; and CERTIFICATES that not leſs than twenty gallons have been purified according to the proceſs delivered in, together with two gallons of the oil, in its unpurified ſtate, and two gallons ſo refined, be produced to the Society on or before the ſecond Tueſday in February, 1799.

143. The ſame premium is extended one year further.

CERTIFICATES and SAMPLES to be produced on or before the ſecond Tueſday in February, 1800.

144. CLEARING FEATHERS FROM THEIR ANIMAL OIL. To the perſon who ſhall diſcover to the Society the beſt

beſt and moſt expeditious method, ſuperior to any hitherto practiſed, of clearing Gooſe-feathers from their offenſive Animal Oil, for the uſe of Upholders, in making beds, cuſhions, &c. the GOLD MEDAL, or FORTY GUINEAS.

A quantity of ſuch Feathers, unſtripped, and ſo cleared, not leſs than forty pounds weight, with a full account of the proceſs, to be produced to the Society on or before the firſt Tueſday in February, 1799.

145. SUBSTITUTE FOR, OR PREPARATION OF, YEAST. For diſcovering to the Society an effectual Subſtitute for Yeaſt, or preparation of Yeaſt, which, after being kept ſix months, ſhall be fit for fermenting liquors, and raiſing bread; the GOLD MEDAL, or THIRTY GUINEAS.

Specimens of the Subſtitute, or of the Preparation of Yeaſt, ſufficient for trials, together with a paper ſealed up, and containing an account of the compoſition of the Subſtitute

Subſtitute, or method of preparing the Yeaſt, to be produced on or before the laſt Tueſday in November, 1798.

146. PROOF SPIRIT. To the Diſtiller who in the year 1798 ſhall make the greateſt quantity, not leſs than one hundred gallons, of a clean marketable Spirit, from articles not the food of man or cattle, equal in ſtrength or quality to the Proof Spirit now in uſe, and at a rate not higher than the ſpirit produced from corn or melaſſes; the GOLD MEDAL, or FIFTY GUINEAS.

Ten gallons of the Spirit, together with proper CERTIFICATES, and a full account of the expence and mode of making it, to be produced to the Society on or before the firſt Tueſday in January, 1799.

147. PRESERVING SALTED PROVISIONS FROM BECOMING RANCID OR RUSTY. To the perſon who ſhall diſcover to the Society the beſt, cheapeſt, and moſt efficacious method of preſerving

ving Salted Proviſions from growing rancid or ruſty; the GOLD MEDAL, or THIRTY GUINEAS.

A full deſcription of the method, with proper CERTIFICATES that it has been found, on repeated trials, to anſwer the purpoſe intended, to be produced to the Society on or before the firſt Tueſday in February, 1799.

148. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in February, 1800.

149. INCREASING STEAM. To the perſon who ſhall diſcover to the Society a method, verified by actual experiments, of increaſing the quantity or the force of Steam, in Steam-Engines, with leſs fuel than is uſually employed, provided that in general the whole amount of the expences, in uſing Steam-Engines, may be conſiderably leſſened;

leſſened; the GOLD MEDAL, or THIRTY GUINEAS.

To be communicated to the Society on or before the firſt Tueſday in January, 1799.

N. B. As it is well known there are methods of preventing the ebullition of liquids by the addition of particular matters in the boiling, it is ſubmitted to the conſideration of the ingenious, whether, by the addition of ſome matters, or by ſome mechanical operations, the boiling and evaporation may not be increaſed.

150. PREVENTING THE DRY-ROT IN TIMBER. To the perſon who ſhall diſcover to the Society the cauſe of the Dry-Rot in Timber, and diſcloſe a certain method of prevention, ſuperior to any hitherto known; the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS of the cauſe, and method of prevention, confirmed by repeated experiments, to be produced to the Society on or

or before the ſecond Tueſday in December, 1798.

151. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1799.

152. FINE BAR-IRON. To the perſon, in Great Britain, who ſhall make the greateſt quantity of Bar-Iron, not leſs than ten tons, with Coak, from Coak Pigs, equal in quality to the beſt Iron imported from Sweden or Ruſſia, and as fit for converting into Steel; the GOLD MEDAL.

SAMPLES, not leſs than one hundred weight, with CERTIFICATES that the whole quantity is of equal quality, to be produced to the Society on or before the firſt Tueſday in January, 1799.

153. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be delivered on or before the firſt Tueſday in January, 1800.

154.

154. METHOD OF PREPARING WHITE LEAD, WHICH SHALL NOT BE PREJUDICIAL. To the perſon who ſhall diſcover to the Society a method of preparing White Lead, in a manner that ſhall not be prejudicial to the health of the Workmen employed either in making or uſing it, and will anſwer all the purpoſes for which White Lead is at preſent uſed; the GOLD MEDAL, or FIFTY GUINEAS.

A quantity of the White Lead ſo prepared, with an account of the proceſs made uſe of, and CERTIFICATES that not leſs than one ton has been manufactured in the ſame manner, to be produced to the Society on or before the ſecond Tueſday in February, 1799.

155. SUBSTITUTE FOR THE BASIS OF PAINT. To the perſon who ſhall produce to the Society the beſt Subſtitute, ſuperior to any hitherto known, for the Baſis of Paint, equally proper for the purpoſe

purpoſe as the White Lead now employed; ſuch ſubſtitute not to be of a noxious quality, and which may be afforded at a price not materially higher than that of White Lead; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

A quantity of the Subſtitute, not leſs than fifty pounds weight, with an ACCOUNT of the proceſs uſed in preparing it, and CERTIFICATES that at leaſt one hundred weight has been manufactured, to be produced to the Society on or before the ſecond Tueſday in November, 1798.

156. The ſame premium is extended one year further.

CERTIFICATES and ACCOUNTS to be produced on or before the ſecond Tueſday in November, 1799.

157. RED PIGMENT. To the perſon who ſhall diſcover to the Society a full and ſatisfactory proceſs for preparing a red Pig-

ment, fit for uſe, in oil or water, equal in tone and brilliancy to the beſt Carmines and Lakes now known or in uſe, and perfectly durable; the GOLD MEDAL, or THIRTY GUINEAS.

One pound weight of ſuch Colour, and a full diſcloſure of its preparation, to be produced to the Society on or before the firſt Tueſday in February, 1799.

N. B. It is not required that the Colour ſo to be produced ſhould reſiſt the action of fire or chemical applications, but remain unaltered by the common expoſure to ſtrong light, damps, and noiſome vapours.

158. REFINING BLOCK TIN. To the perſon who ſhall diſcover to the Society the beſt method of purifying or refining *Block Tin*, in ſuch a manner as to render it fit for the finer purpoſes to which *Grain Tin* is now ſolely applied, and at an expence that ſhall not render it higher in price than *Grain Tin*; the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES that not leſs than three tons have been refined or purified, with a full detail of the proceſs, and a quantity, not leſs than one hundred weight, of the Tin ſo refined, to be produced to the Society on or before the firſt Tueſday in November, 1798.

159. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1799.

160. GLAZING EARTHEN WARE WITHOUT LEAD. To the perſon who ſhall diſcover to the Society the cheapeſt, ſafeſt, moſt durable, and moſt eaſily fuſible Compoſition, fit for the purpoſe of glazing the ordinary kinds of Earthen Ware, without any preparation of Lead, and equal to any hitherto in uſe; the GOLD MEDAL, or THIRTY GUINEAS.

SPECIMENS of the Ware ſo glazed, with proper CERTIFICATES of its having ſucceeded, and a SAMPLE of the materials made uſe of, to be produced to the Society on or before the firſt Tueſday in February, 1799.

161. BLACK DYE ON COTTON. To the perſon who ſhall invent and produce to the Society a Black Dye on Cotton Yarn, ſuperior to any hitherto known or in uſe; the GOLD MEDAL, or THIRTY GUINEAS.

A full ACCOUNT of the proceſs, with CERTIFICATES that the Cotton thus dyed ſtands waſhing with ſoap, and a SAMPLE of the Yarn ſo dyed, not leſs than five pounds weight, to be produced to the Society on or before the firſt Tueſday in February, 1799.

162. PRESERVING IRON FROM RUST. To the perſon who ſhall invent and diſcover to the Society, a cheap compoſition, which ſhall effectually preſerve Wrought

Wrought Iron from Ruſt, the GOLD MEDAL, or FIFTY GUINEAS.

A full deſcription of the method of preparing the compoſition, with CERTIFICATES that it has ſtood at leaſt two years unimpaired, and expoſed to the atmoſphere during the whole time, to be produced to the Society, with ten pounds weight of the compoſition, on or before the firſt Tueſday in January, 1799.

163. The ſame premium is extended one year further.

The deſcription and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in January, 1800.

164. The ſame premiums are extended one year further.

The deſcription and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in January, 1801.

165. OPIUM. To the perſon who, in the year 1798, ſhall prepare the greateſt

quantity, not leſs than twenty pounds weight, of Opium, from Poppies grown in Great Britain, and equal in quality to the beſt foreign Opium, the GOLD MEDAL, or FIFTY GUINEAS.

166. For the next greateſt quantity, not leſs than ten pounds weight, the SILVER MEDAL, or TWENTY GUINEAS.

SAMPLES of the Opium, not leſs than five pounds weight, with proper CERTIFICATES that the whole is of the ſame quality, to be produced to the Society, with a particular account of the method of cultivating the Poppies, and preparing the Opium, on or before the laſt Tueſday in February, 1799.

167, 168. The ſame premiums are extended one year further.

The SAMPLES, CERTIFICATES, and ACCOUNTS, to be produced to the Society on or before the laſt Tueſday in February, 1800.

Premiums

Premiums for promoting the Polite Arts.

169. HONORARY PREMIUMS FOR DRAWINGS. For the beſt Drawing of any kind, made with Water-Colours, Crayons, Chalk, Black Lead, Pen, Indian Ink, or Biſter, by young Gentlemen under the age of twenty-one, ſons or grandſons of Peers, or Peereſſes in their own right, of Great Britain or Ireland, to be produced on or before the firſt Tueſday in March, 1799, the HONORARY MEDAL of the Society IN GOLD.

170. The ſame IN SILVER for the next in merit.

171, 172. The ſame premiums will be given, on the like conditions, to young Ladies, daughters or grand-daughters of Peers, or Peereſſes in their own right, of Great Britain or Ireland.

173. HONORARY PREMIUMS FOR DRAWINGS. For the beſt Drawing of any kind, made with Water-colours, Crayons, Chalk, Black Lead, Pen, Indian Ink, or Biſter, by young Gentlemen under the age of twenty-one; to be produced on or before the firſt Tueſday in March, 1799; the GOLD MEDAL.

174. For the next in merit, the SILVER MEDAL.

175, 176. The ſame premiums will be given for Drawings by young Ladies.

N. B. As the foregoing Honorary Premiums are intended only for ſuch of the Nobility and Gentry as may hereafter become patrons or patroneſſes of the Arts; perſons profeſſing any branch of the Polite Arts, or any buſineſs dependent on the Arts of Deſign, or the ſons or daughters of ſuch perſons, will not be admitted Candidates in theſe Claſſes.

The

The following Premium (Claſs 181*) is offered in conformity to the Will of the late John Stock, of Hampſtead, Eſq.*

177. DRAWING. For the beſt Drawing, in Indian Ink, not leſs than eighteen inches high, of the Statue of the late Joſhua Ward, Eſq. in the Great-Room of the Society, to be produced on or before the third Tueſday in February, 1799, a SILVER MEDALLION, with the following engraved inſcription: *The Premium given by the Society, for the Encouragement of Arts, Manufactures, and Commerce, in conformity to the Will of John Stock, of Hampſtead, Eſq.*

The Drawing to be left with the Society as their property.

N. B. Such perſons as propoſe to become Candidates for this premium will be admitted by the Regiſter, any day (Sundays or Wedneſdays excepted), between the hours of ten and two.

178.

178. DRAWINGS OF OUTLINES. For the beſt Outline, after an original group or caſt, in plaſter, of Human Figures, by perſons of either ſex, under the age of ſixteen, the principal figure not leſs than twelve inches; to be produced on or before the third Tueſday in February, 1799; the greater SILVER PALLET.

179. For the next in merit, the leſſer SILVER PALLET.

N. B. Theſe drawings are to be made on Paper, with Chalk, Black Lead, Indian Ink, or Biſter; and the original either to be produced to the Society, or to be referred to for their examination.

180. DRAWINGS OF LANDSCAPES. For the beſt Drawing of a Landſcape after nature, by perſons of either ſex, under twenty-one years of age, to be produced on or before the third Tueſday in February, 1799, the greater SILVER PALLET.

181.

181. For the next in merit, the leſſer SILVER PALLET.

Each Candidate muſt mention, on the front of the Drawing, from whence the View was taken; and the Drawings muſt be made with Chalk, Pen, Indian Ink, Water-Colours, or Biſter.

182. HISTORICAL DRAWINGS. For the beſt Hiſtorical Drawing, being an original compoſition, of five or more Human Figures; the height of the principal figure not leſs than eight inches; to be made with Crayons, Chalk, Black Lead, Pen, Indian Ink, Water-Colours, or Biſter, and to be produced on or before the third Tueſday in February, 1799; the GOLD PALLET.

183. For the next in merit, the greater SILVER PALLET.

184. SURVEYS OF COUNTIES. To the perſon who, in the year 1798, ſhall complete and publiſh an accurate Survey of any

any one County in England or Wales, on a ſcale of not leſs than one inch to a mile, for which rewards have not already been given by the Society; the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES of the accuracy of the Survey, and that it was begun after the firſt of June, 1794, together with the Map, to be produced on or before the laſt Tueſday in January, 1799.

The Map to which the premium ſhall be adjudged, to remain the property of the Society.

N. B. The Society are already in poſſeſſion of Surveys of the following Counties, viz. Bedford, Cheſhire, Cornwall, Cumberland, Derbyſhire, Devonſhire, Dorſetſhire, Durham, Hampſhire, Herefordſhire, Hertfordſhire, Huntingdonſhire, Leiceſterſhire, Northamptonſhire, North Wales (large and ſmall), Nottinghamſhire, Oxfordſhire, Somerſetſhire, Staffordſhire, Suffolk, Surrey, Suſſex, Weſtmoreland, and Worceſterſhire.

185.

185. The ſame premium is extended one year further.

The Survey to be begun after the firſt of June, 1795; and the Map to be produced on or before the laſt Tueſday in January, 1800.

186. The ſame premium is extended one year further.

The Survey to be begun after the firſt of June, 1796; and the Map to be produced on or before the laſt Tueſday in January, 1801.

187. NATURAL HISTORY. To the Author who ſhall publiſh, in the year 1798, the Natural Hiſtory of any County of England or Wales, the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the ſeveral natural productions, whether animal, vegetable or mineral, peculiar to the County, or found therein, be carefully and ſpecifically arranged

ranged and deſcribed, in order that the Public may be enabled to judge what Arts or Manufactures are moſt likely to ſucceed in ſuch County.

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1799.

188. The ſame premium is extended one year further.

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1800.

189. The ſame premium is extended one year further.

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1801.

CONDITIONS.

No perſon who has gained the firſt premium in any Claſs, will be admitted a Candidate

didate in a Claſs of an inferior age; and no Candidate ſhall receive more than one Premium in one year; nor will they who for two ſucceſſive years ſhall gain the firſt Premium in one Claſs, be ever again admitted as Candidates in that Claſs.

No perſon ſhall ever be admitted a Candidate in any Claſs, in which he has three times obtained the whole of the firſt Premium.

No Candidate ſhall ſend in more than one Performance in any one Claſs.

All the Claims which are produced each Seſſion before the Committee of Polite Arts (to which Premiums or Bounties are adjudged), are to remain with the Society till after the public diſtribution of Rewards in May.

No Claim for a Premium in the Polite Arts will be admitted, that has obtained, or has been produced in order to obtain, a Premium, Reward, or Gratification, from any other Society, or any Academy or School.

All

All Performances that obtain Premiums in the Polite Arts, muſt be begun after the publication of ſuch Premiums.

Purpoſely to encourage real merit, and to prevent any attempts to impoſe on the Society, by producing drawings which ſhall have been made or retouched by any other perſon than the Candidate, the Society is reſolved, upon all occaſions, with reſpect to the ſucceſsful Candidates in Claſſes 177 to 182 incluſive, to prove their abilities, by requiring a ſpecimen made under the inſpection of the Committee of Polite Arts, in every inſtance where ſuch proof can be obtained.

It is required that all Candidates in the Polite Arts do ſignify, on their drawings, their age; and whether the performances are originals, or copies; and, if copies, whence they were taken.

Premiums

Premiums for encouraging and improving Manufactures.

190. SILK. For the greateſt quantity of merchantable Silk, not leſs than ten pounds weight, produced by worms bred in England in the year 1798, the property of any one perſon; the GOLD MEDAL.

191. For the ſecond greateſt quantity, not leſs than five pounds weight; the SILVER MEDAL.

SPECIMENS of the SILK, not leſs than one pound, with CERTIFICATES that the whole is of equal quality, and produced in England, to be delivered to the Society on or before the firſt Tueſday in January, 1799.

192. MACHINE FOR CARDING SILK. For the beſt Machine, ſuperior to any now in uſe, for carding Waſte Silk equally well as by hand; to be produced, together with a ſpecimen of the Cardings,

on or before the firſt Tueſday in November, 1798; the GOLD MEDAL, or THIRTY GUINEAS.

193. CLOTH FROM HOP-STALKS OR BINES. To the perſon who ſhall produce to the Society the greateſt quantity, not leſs than thirty yards, of Cloth, at leaſt twenty-ſeven inches wide, made in Great Britain, of Hop-Stalks or Bines, and ſuperior to any hitherto manufactured in England of that material; the GOLD MEDAL, or THIRTY GUINEAS.

One pound of the Thread of which the Cloth is made, and thirty yards of the Cloth, together with proper CERTIFICATES that the whole is manufactured from Hop-Stalks or Bines, to be produced to the Society on or before the firſt Tueſday in December, 1798.

N. B. The Society are already in poſſeſſion of Cloth made in England from Hop-Stalks or Bines, which may be inſpected by application to the Regiſter.

194.

194. WICKS FOR CANDLES OR LAMPS. To the perſon who ſhall diſcover to the Society a method of manufacturing Hop-Stalks or Bines, or any other cheap material, the growth of Great Britain, ſo as to render them fit for the purpoſe of ſupplying the place of Cotton, for Wicks of Candles or Lamps; TWENTY GUINEAS.

SAMPLES, not leſs than five pounds weight, of the Wicks, ſo prepared, to be produced to the Society, with CERTIFICATES that the whole quantity is equal in quality to the Sample, on or before the ſecond Tueſday in January, 1799.

195. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced on or before the ſecond Tueſday in January, 1800.

196. PAPER FROM RAW VEGETABLE SUBSTANCES. To the perſon

in Great Britain who ſhall make the greateſt quantity, not leſs than ten reams, of the beſt and moſt uſeful Paper, from Raw Vegetable Subſtances; TWENTY GUINEAS.

CERTIFICATES of the making ſuch Paper, and one ream of the Paper, to be produced on or before the firſt Tueſday in November, 1798.

N. B. The Society are in poſſeſſion of two volumes, containing a great variety of ſpecimens of Paper made from Raw Vegetables, viz. Thiſtles, Potatoe-Haum, Poplar, Hop-bines, &c. which volumes may be inſpected by any perſon, on application to the Regiſter.

197. TAKING PORPOISES. To the people in any boat or veſſel, who, in the year 1798, ſhall take the greateſt number of Porpoiſes, on the coaſt of Great Britain, by Gun-Harpoon, or any other method, not fewer than thirty, for the purpoſe of extracting oil from them; THIRTY POUNDS.

CERTI-

CERTIFICATES of the number, ſigned by the perſons to whom they have been ſold or delivered for the purpoſe of extracting the oil, to be produced to the Society on or before the laſt Tueſday in January, 1799.

198. OIL FROM PORPOISES. To the perſon who ſhall manufacture the greateſt quantity of Oil from Porpoiſes taken on the coaſt of Great Britain, in the year 1798, not leſs than thirty tons; THIRTY POUNDS.

199. For the next greateſt quantity, not leſs than fifteen tons; FIFTEEN POUNDS.

CERTIFICATES of the Oil having been made from Porpoiſes actually caught on the coaſt of Great Britain, and two gallons of the Oil, as a Sample, to be produced to the Society on or before the laſt Tueſday in February, 1799.

Premiums for Inventions in Mechanicks.

200. TRANSIT INSTRUMENT. To the perſon who ſhall invent and produce to the Society a cheap and portable Tranſit Inſtrument, which may eaſily be converted into a Zenith Sector, capable of being accurately and expeditiouſly adjuſted for the purpoſe of finding the Latitudes and Longitudes of places, and ſuperior to any portable Tranſit Inſtrument now in uſe; the GOLD MEDAL, or FORTY GUINEAS.

To be produced on or before the laſt Tueſday in January, 1799.

201. TAKING WHALES BY THE GUN-HARPOON. To the perſon who, in the year 1798, ſhall ſtrike the greateſt number of Whales, not fewer than three, with the Gun-Harpoon; TEN GUINEAS.

Proper CERTIFICATES of the ſtriking ſuch Whales, and that they were actually taken

taken in the year 1798, ſigned by the Maſter, or by the Mate when the Claim is made by the Maſter, to be produced to the Society on or before the laſt Tueſday in December, 1798.

202. DRIVING BOLTS INTO SHIPS. To the perſon who ſhall invent and produce to the Society a Model, ſhewing a method of driving Bolts into Ships, particularly thoſe of Copper, without ſplitting the head or bending them, with more diſpatch, in all directions, and tighter than by any means hitherto known or in uſe; the GOLD MEDAL, or FORTY GUINEAS.

The Model, with CERTIFICATES that a Machine on the ſame conſtruction has been uſed to advantage, to be produced to the Society on or before the firſt Tueſday in February, 1799.

203. PARISH OR FAMILY MILL. To the perſon who ſhall invent and produce to the Society, the beſt-conſtructed Mill for

grinding corn for the uſe of private families, or pariſh poor; the conſtruction to be ſuch as to render the working of the Mill eaſy and expeditious, and ſuperior to any hitherto in uſe; the GOLD MEDAL, or FORTY GUINEAS.

The Mill, and CERTIFICATES of its having been uſed to good effect, to be produced to the Society on or before the firſt Tueſday in February, 1799.

N. B. Cheapneſs and ſimplicity will be conſidered as eſſential parts of its merit.

204. MACHINE FOR RAISING COALS, ORE, &c. &c. To the perſon who ſhall invent a Machine for raiſing Coals, Ore, &c. from Mines, which ſhall produce the effect at a leſs expence than thoſe already known or in uſe; the GOLD MEDAL, or FIFTY GUINEAS.

A Model of the Machine, made on a ſcale of not leſs than one inch to a foot, with a CERTIFICATE that a Machine at large

large on the ſame conſtruction has been advantageouſly uſed, to be produced to the Society on or before the ſecond Tueſday in February, 1799.

205. MACHINE FOR RAISING WATER. To the perſon who ſhall invent a Machine, on a better, cheaper, and more ſimple conſtruction than any hitherto known or in uſe, for raiſing Water out of Wells, &c. from a depth not leſs than fifty feet; the GOLD MEDAL, or FORTY GUINEAS.

CERTIFICATES of the performance of the Machine, and a Model of it, on a ſcale of not leſs than one inch to a foot, to be produced to the Society on or before the firſt Tueſday in February, 1799.

206. BORING ROCKS IN ORDER TO BLAST THEM. To the perſon who ſhall diſcover to the Society a more cheap, ſimple, and expeditious Method than any hitherto known or in uſe, of Boring Rocks in

in Mines, Shafts, Wells, &c. for the purpoſe of Blaſting them with Gunpowder; the GOLD MEDAL, or FORTY GUINEAS.

CERTIFICATES of the method having been practiſed with ſucceſs, with a full deſcription thereof, to be delivered to the Society on or before the firſt Tueſday in January, 1799.

207. *As the preſent method of cleanſing Chimneys is attended with great hardſhips, and ſometimes with fatal accidents to the children employed, and as the quantity of ſoot accumulated in Chimneys is frequently the occaſion of Fires, the Society propoſe to give the following Premium.*

CLEANSING CHIMNEYS. To the perſon who ſhall invent and produce to the Society, the moſt ſimple, cheap, and proper Apparatus, ſuperior to any hitherto known or in uſe, for cleanſing Chimneys from Soot, and obviating the neceſſity of children being employed within the flues, in the manner

manner now practiſed; the GOLD MEDAL, or FORTY GUINEAS.

The Apparatus, with CERTIFICATES of its having been uſed with proper effect, to be produced to the Society on or before the third Tueſday in February, 1799.

208. PREVENTING PASSENGERS IN CARRIAGES BEING INJURED WHEN THE HORSES HAVE TAKEN FRIGHT. To the perſon who ſhall invent and diſcover to the Society the beſt and moſt effectual method of preventing Paſſengers in Carriages being injured when the Horſes have taken fright; the GOLD MEDAL, or THIRTY GUINEAS.

CERTIFICATES that the Invention has been uſefully applied to at leaſt one Carriage, and may be advantageouſly applied to others, to be produced to the Society on or before the ſecond Tueſday in February, 1799.

209.

209. GUNPOWDER MILLS. To the perſon who, in the year 1798, ſhall invent and bring to perfection the moſt effectual method of ſo conducting the works of Gunpowder Mills, in the buſineſs of making Gunpowder, as to prevent the poſſibility of their being blown up and deſtroyed by exploſion; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

CERTIFICATES and ACCOUNTS of the method having been put in practice in one or more Gunpowder Mills in this kingdom, and that it promiſes, in the opinion of the beſt judges concerned in ſuch works, to anſwer the purpoſe intended, to be produced to the Society on or before the firſt Tueſday in February, 1799.

210. The ſame premium is extended one year further.

CERTIFICATES and ACCOUNTS to be produced to the Society on or before the firſt Tueſday in February, 1800.

N. B.

N. B. As an encouragement to perſons to turn their thoughts to improvements of this nature, if any ſhould be made on the preſent method of conducting the buſineſs of Gunpowder-making, which fall ſhort of the total prevention of exploſion, and they are ſent to the Society, for the ſake of humanity, the papers ſo ſent in will receive due conſideration, and ſuch Bounty or Reward will be beſtowed thereon as they appear to merit.

211. MILL STONES. To the perſon who ſhall diſcover, in Great Britain, a Quarry of Stone fit for the purpoſes of Mill Stones for grinding Wheat, and equal in all reſpects to that Stone known by the name of FRENCH BURR; The GOLD MEDAL, or ONE HUNDRED POUNDS.

A pair of Mill Stones, at leaſt three feet eight inches diameter, with an account of the ſituation of the Quarry, and CERTIFICATES that not fewer than two pair of ſuch Mill Stones have been effectually uſed for grinding

grinding Wheat, to be produced to the Society on or before the firſt Tueſday in February, 1799.

212. The ſame premium is extended one year further.

The ACCOUNTS, SAMPLES, and CERTIFICATES, to be produced to the Society on or before the firſt Tueſday in February, 1800.

Pre-

Premiums offered for the advantage of the Britiſh Colonies.

213. NUTMEGS. For the greateſt quantity of Merchantable Nutmegs, not leſs than ten pounds weight, being the growth of his Majeſty's dominions in the Weſt Indies, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, and equal to thoſe imported from the Iſlands of the Eaſt Indies; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

Satisfactory CERTIFICATES, from the Governor or Commander in Chief, of the place of growth, with an account of the number of trees, their age, nearly the quantity of fruit on each tree, and the manner of culture, to be produced on or before the firſt Tueſday in December, 1798.

214. The ſame premium is extended one year further.

CERTI-

CERTIFICATES to be produced on or before the ſecond Tueſday in December, 1799.

215. CINNAMON. For importing into the port of London, in the year 1798, the greateſt quantity, not leſs than twenty pounds weight, of Cinnamon, being the growth of ſome of the Iſlands in the Weſt-Indies belonging to the Crown of Great Britain, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, and equal in goodneſs to the Cinnamon brought from the Eaſt-Indies; the GOLD MEDAL, or FIFTY GUINEAS.

SAMPLES, not leſs than two pounds weight, with CERTIFICATES that the whole quantity is equal in goodneſs; together with ſatisfactory CERTIFICATES, ſigned by the Governor, or Commander in Chief, of the place of growth, with an account of the number of trees growing on the ſpot, their age, and the manner of culture;

ture; to be produced to the Society on or before the firſt Tueſday in January, 1799.

216. CLOVES. For importing into the port of London, in the year 1798, the greateſt quantity of Cloves, not leſs than twenty pounds weight, being of the growth of ſome of the Iſlands of the Weſt-Indies, ſubject to the Crown of Great Britain, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, and equal in goodneſs to the Cloves brought from the Eaſt-Indies; the GOLD MEDAL, or FIFTY GUINEAS.

SAMPLES, not leſs than two pounds weight, with CERTIFICATES that the whole quantity is equal in goodneſs, together with ſatisfactory CERTIFICATES, ſigned by the Governor, or Commander in Chief, of the place of growth, with an account of the number of trees growing on the ſpot, their age, and the manner of culture, to be produced to the Society

on or before the firſt Tueſday in January, 1799.

217. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1800.

218. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1801.

219. PLANTATIONS OF BREAD-FRUIT TREES. To the perſon who ſhall have raiſed in any of the Iſlands of the Weſt-Indies, ſubject to the Crown of Great Britain, or in any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, between the firſt of January, 1797, and the firſt of January, 1798,

1798, the greateſt number of Bread-fruit Trees, not fewer than one hundred, and properly fenced and ſecured the ſame, in order to ſupply the Fruit to the Inhabitants; the GOLD MEDAL, or THIRTY GUINEAS.

Proper ACCOUNTS and CERTIFICATES, ſigned by the Governor or Commander in Chief, of the methods made uſe of in cultivating the Plants and ſecuring the Plantation, and that the Trees are in a growing and thriving ſtate at the time of ſigning ſuch Certificates, to be produced to the Society, with Samples of the Fruit, on or before the firſt Tueſday in January, 1799.

220. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1800.

221. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1801.

222. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1802.

223. KALI FOR BARILLA. To the perſon who ſhall have cultivated, in the Bahama Iſlands, or any other part of his Majeſty's dominions in the Weſt Indies, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, in the year 1795, the greateſt quantity of land, not leſs than two acres, with Spaniſh Kali, fit for the purpoſe of making Barilla; the GOLD MEDAL, or THIRTY GUINEAS.

224. For the next greateſt quantity, not leſs than one acre; the SILVER MEDAL, or FIFTEEN GUINEAS.

CERTI-

CERTIFICATES, ſigned by the Governor, or Commander in Chief for the time being, of the quantity of land ſo cultivated, and of the ſtate of the Plants at the time of ſigning ſuch Certificates, to be delivered to the Society, with Samples of the Kali, on or before the ſecond Tueſday in November, 1798,

225, 226. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1799.

227, 228. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1800.

229. DESTROYING THE INSECT COMMONLY CALLED THE BORER. To the perſon who ſhall diſ-

cover to the Society an effectual method of deſtroying the Inſect commonly called the BORER, which has of late years been ſo deſtructive to the Sugar-Canes in the Weſt-India Iſlands, or in any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto; the GOLD MEDAL, or FIFTY GUINEAS.

The Diſcovery to be aſcertained by ſatisfactory CERTIFICATES, under the hand and ſeal of the Governor or Commander in Chief for the time being, and of ſome other reſpectable perſons, inhabitants of the Iſlands, or other place, in which the remedy has been ſucceſsfully applied; ſuch CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in January, 1799.

230. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in January, 1800.

231.

231. BOTANIC GARDEN IN THE BAHAMA ISLANDS. To the perſon who, before the firſt of January, 1797, ſhall have ſet apart, and, at his own private expence, ſhall have properly fenced and cultivated, the greateſt quantity of ground, not leſs than five acres, in any of the Bahama Iſlands, as a Botanic Garden, for the purpoſe of making experiments in the culture of thoſe articles which are the peculiar production of the tropical climates, and which may tend to promote the commerce and manufactures of this country; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

It is required that any perſon claiming the foregoing premium, ſhould produce to the Society, on or before the firſt Tueſday in January, 1799, a CERTIFICATE from the Governor or Commander in Chief of the Bahama Iſlands for the time being, of his having complied with the above requiſitions, and that the Garden is in a proper ſtate of culture at the time of ſigning ſuch Certificate.

232. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1800.

Premiums

Premiums offered for the advantage of the Britiſh Settlements in the Eaſt Indies.

233. BHAUGULPORE COTTON. To the perſon who ſhall import into the port of London, in the year 1798, the greateſt quantity, not leſs than one ton, of the Bhaugulpore Cotton, from which clothes are made in imitation of nankeen, without dying; the GOLD MEDAL.

A quantity of the Cotton, not leſs than five pounds weight in the pod, and five pounds carded, to be produced to the Society, with proper CERTIFICATES, ſigned by the Secretary to the Board of Trade of Bengal, on or before the laſt Tueſday in February, 1799.

234. The ſame premium is extended one year further.

The

The SAMPLES and CERTIFICATES to be produced to the Society on or before the laſt Tueſday in February, 1800.

235. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced to the Society on or before the laſt Tueſday in February, 1801.

236. ANNATTO. To the perſon who, in the year 1798, ſhall import into the port of London, from any part of the Britiſh Settlements in the Eaſt Indies, the greateſt quantity of Annatto, not leſs than five hundred weight; the GOLD MEDAL.

A quantity of the Annatto, not leſs than ten pounds weight, to be produced to the Society, with proper CERTIFICATES, ſigned by the Secretary of the Board of Trade of the reſpective Settlement, that the Annatto is the produce of ſuch Settlement, on or before the laſt Tueſday in February, 1799.

237.

237. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced to the Society on or before the laſt Tueſday in February, 1800.

238. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced to the Society on or before the laſt Tueſday in February, 1801.

239. TRUE COCHINEAL. To the perſon who, in the year 1798, ſhall import into the port of London, from any part of the Britiſh Settlements in the Eaſt Indies, the greateſt quantity of True Cochineal, not leſs than five hundred weight; the GOLD MEDAL.

A quantity of the Cochineal, not leſs than ten pounds weight, with proper CERTIFICATES, ſigned by the Secretary of the Board of

of Trade of the reſpective Settlement, that the Cochineal is the produce of ſuch Settlement, to be produced to the Society on or before the laſt Tueſday in February, 1799.

240. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced on or before the laſt Tueſday in February, 1800.

Society's Office, Adelphi, June 1, 1798.

Ordered,

THAT THE SEVERAL CANDIDATES AND CLAIMANTS TO WHOM THE SOCIETY SHALL ADJUDGE PREMIUMS OR BOUNTIES, DO ATTEND AT THE SOCIETY'S OFFICE IN THE ADELPHI, ON THE LAST TUESDAY IN MAY, 1799, AT TWELVE O'CLOCK AT NOON, TO RECEIVE THE SAME; THAT DAY BEING APPOINTED BY THE SOCIETY FOR THE DISTRIBUTION OF THEIR REWARDS: AND BEFORE THAT TIME NO PREMIUM OR BOUNTY WILL BE DELIVERED, EXCEPTING TO THOSE WHO ARE OUT OF THE KINGDOM, OR PREVENTED BY UNAVOIDABLE ACCIDENTS.

IN CASES WHERE THE SOCIETY MAY THINK FIT TO ADMIT EXCUSES FOR NOT ATTENDING IN PERSON, DEPUTIES MAY BE SUBSTITUTED TO RECEIVE THE REWARDS, PROVIDED SUCH DEPUTIES ARE EITHER MEMBERS OF THE SOCIETY, OR THE SUPERIOR OFFICERS THEREOF.

GENERAL

GENERAL CONDITIONS.

NOTWITHSTANDING the Society reſerve to themſelves the power of giving, in all caſes, ſuch part only of any Premium as the performance ſhall be adjudged to deſerve, or of withholding the whole, if there be no merit; yet the Candidates may be aſſured the Society will always judge liberally of their ſeveral claims.

It is required that the matters for which Premiums are offered, be delivered in without names, or any intimation to whom they belong; that each particular thing be marked in what manner each Claimant thinks fit, ſuch Claimant ſending with it a paper ſealed up, having on the outſide a correſponding mark, and on the inſide the Claimant's name and addreſs: and all Candidates are to take notice, that no Claim for a Premium will be attended to, unleſs the conditions of the Advertiſement are fully complied with.

No

No Papers ſhall be opened, but ſuch as ſhall gain Premiums, unleſs where it appears to the Society abſolutely neceſſary for the determination of the Claim; all the reſt ſhall be returned unopened, with the Matters to which they belong, if enquired after by the Mark, within two years; after which time, if not demanded, they ſhall be publicly burnt, unopened, at ſome meeting of the Society.

All Models of Machines, which obtain Premiums or Bounties, ſhall be the property of the Society.

All the Premiums of this Society are deſigned for Great-Britain, unleſs expreſsly mentioned to the contrary.

The Claims ſhall be determined as ſoon as poſſible after the delivery of the ſpecimens.

No perſon ſhall receive any Premium, Bounty, or Encouragement from the Society, for any matter for which he has obtained, or propoſes to obtain, a patent.

A Candidate for a Premium, or a perſon applying for a bounty, being detected in any diſingenuous method to impoſe on

the Society, ſhall forfeit ſuch Premium or Bounty, and be deemed incapable of obtaining any for the future.

The Performances which each year obtain Premiums or Bounties, are to remain with the Society until after the public diſtribution of Rewards.

No member of this Society ſhall be a Candidate for, or entitled to receive, any Premium, Bounty, or Reward whatſoever, except the Honorary Medal of the Society.

Where Certificates are required to be produced in claim of Premiums, they ſhould be expreſſed, as nearly as poſſible, in the words of the reſpective advertiſements, and ſhould not be from the Candidate (ſolely), but from ſome other perſon or perſons who have a poſitive knowledge of the facts certified.

Where Premiums or Bounties are obtained in conſequence of ſpecimens produced, the Society mean to retain ſuch part of thoſe ſpecimens as they may judge neceſſary, making a reaſonable allowance for the ſame.

No candidates ſhall be preſent at any meetings of the Society or Committees, or admitted at the Society's Rooms, after they have delivered in their Claims, until ſuch Claims are adjudged, unleſs ſummoned by the Committee.

N. B. Any information or advice that may forward the deſigns of this Society for the public good, will be received thankfully, and duly conſidered, if communicated by letter, addreſſed to the Society, and directed to Mr. MORE, the Secretary, at the Society's Office, in the Adelphi Buildings, London.

*** In caſe any perſon ſhould be inclined to leave a ſum of money to this Society, by will, the following form is offered for that purpoſe:

Item. I give and bequeath unto A. B. and C. D. the ſum of upon condition and to the intent that they, or one of them, do pay the ſame to the Collector for the time being, of a Society in London, who now call themſelves the Society for the Encouragement of Arts, Manufactures, and Commerce; which ſaid ſum of I will and deſire may be paid out of my perſonal eſtate, and applied towards the carrying on the laudable deſigns of the Society.

By order of the Society,

SAMUEL MORE, Secretary.

PAPERS

IN

AGRICULTURE.

AGRICULTURE.

THE GOLD MEDAL, being the Premium offered for planting Larch, in the years 1794 and 1795, was this Seſſion adjudged to JOHN SNEYD, of Belmont, in Staffordſhire, Eſq. from whom the following Papers were received.

SIR,

HEREWITH I ſend you a Certificate of the Larches which I happened to have planted within the time mentioned in the advertiſement of the Society; they had been tranſplanted from the ſeed-bed, and afterwards from the nurſery, at proper intervals, and had all excellent roots; ſo that (excluſive of their preſent very flouriſhing appearance) I doubt not but they will do us all credit. Every one, I truſt, is yearly more

and more convinced how very profitable the cultivation of Larch muſt prove to the kingdom at large. The *method uſed in making* this plantation, was, planting with good roots, in large holes, well bedded in with ſoil of a light ſand and loam, in rough, heathy, and ſtony land, without any previous preparation of the land, as it wanted none. The ages of the trees are mentioned in the Certificate. It might have been better to have planted them out one year ſooner, had not great care been taken.

I am, dear Sir,

Your obedient and obliged
humble Servant,

J. SNEYD.

Belmont, Dec. 22, 1797.

Mr. MORE.

SIR,

THIS is to certify, that John Sneyd, Eſq. did plant, in incloſures well fenced with good ſtone walls, at Belmont, Staffordſhire, the following Larch-Trees, between June 1794, and June 1795, at proper diſtances, in a ſoil that ſuits their growth, and that they are now in a thriving and healthy condition.

6000, when planted out, were 4 years old,
5000, ditto 3 ditto.

WILLIAM CARLISLE,
Curate of Ipſtones.

Ipſtones, Dec. 21, 1797.

The Thanks of the Society were this Session given to THOMAS DAVIS, Esq. for the following Communication.

SIR,

HAVING had the honour of being elected a member of the Society for Encouragement of Arts, &c. and thinking it the duty of every member to communicate the result of any experiments he may have made, on those subjects which are the particular objects of the Society, especially such experiments as require a long series of years to ascertain their effect, I flatter myself that the following account of Lord Bath's extensive plantations at Longleat will not prove unacceptable, and in that hope I send them to you.

I am, SIR,
Your very obedient Servant,
THOMAS DAVIS,
Steward to the Marquis of Bath.

Longleat, Jan. 2, 1798.

Mr. MORE.

HAVING been for near thirty-five years in the ſervice of the Marquis of Bath, and, during the laſt twenty, having had the management of his extenſive woods and plantations, I have had full opportunity of obſerving the comparative profit of the different kinds of trees and underwood planted by his Lordſhip during that time; a period in which his Lordſhip has regularly planted on an average upwards of fifty thouſand trees a year, and in ſome years upwards of one hundred thouſand.

The land which his Lordſhip has planted, has been chiefly that tract of poor heathy land, at the foot of Wiltſhire Downs, near Warminſter, which divides the counties of Wilts and Somerſet.

The ſoil in general a black peat, of four or five inches thick, on a ſubſtratum of dry huſky white ſand, intermixed with ſmall ſtones of grit, but as firmly run together as if it had been in a ſtate of fuſion; the natural production, chiefly heath mixed with moſs, but in a weak ſtarve d ſta te.

In

In ſome places the upper ſtratum varies to a tolerable ſandy loam, on a bed of yellow gravel, but thoſe parts are comparatively ſmall; in fact, ſuch land as to be almoſt incapable of improvement in any way but by planting.

The value of this land in its original ſtate, as part of a very extenſive common, was from one to four ſhillings per acre, per annum; and though his Lordſhip has in many inſtances expended double the value of the fee-ſimple of the land, in attempting by ploughing and liming ſome of the beſt parts of it, to bring it into cultivation, it has nevertheleſs ſo ſtrong a tendency to run back to its original ſtate of heath, that it ſets all agriculture at defiance.

Even lime, which is the only manure adapted to it, and which will enable it to produce crops of corn for three or four years after the firſt breaking up, loſes its effect in about ten years, and we have never found that a ſecond liming has produced any good effect.

In

In fact, thoſe parts which have been improved to the higheſt pitch, were, in my opinion, of leſs value as paſture land, fifteen years afterwards, than when covered with heath. Hardy kinds of ſtock would browſe the heath; but the graſs it now produces (chiefly the "aira or hair graſs") is ſo hard and wiry, that ſcarcely any thing will eat it.

This whole tract of land, notwithſtanding its poverty and preſent naked appearance, was once covered with wood: tradition ſays ſo; and the remains of a number of charcoal pits over every part of it, confirm it. But ſince the memory of man, there has been ſcarcely the appearance of a buſh remaining; when the great trees were cut, the little ones being deprived of their ſhelter, caught cold and died.

Lord Bath very judiciouſly covered it with wood again; but being well aware of the difficulty, indeed almoſt impoſſibility, of raiſing foreſt-trees upon it, unleſs they were ſheltered by Scotch Firs, he very wiſely planted

planted a large proportion of the latter, and on all the poorest spots planted Scotch Firs alone.

I have the honour to subjoin an account of the profit he has derived from this plan; and have to add, that the *Beeches*, *Oaks*, &c. which were planted on the *best* spots, although nursed up by Scotch Firs, will not be so valuable at *sixty* years old, as the Scotch Firs on the *very worst* land are at *thirty*.

I also take this opportunity to remove a doubt which has of late prevailed, too generally, that *English-grown Fir* timber is of *no use*. I have had more opportunities of using it, of all ages, from one hundred years growth downwards, than can fall to the lot of most men; and I can safely assert, from my own experience, that in all purposes to which Deal is applicable, I have found English-grown Fir equal in strength and durability to any foreign Deal whatever. I allow that the Scotch Fir (although it is undoubtedly the real yellow Deal) is seldom of so delicate a grain as the foreign yellow Deal,

Deal; but this is entirely occaſioned by the rapidity of its growth, and its having too much room to throw out large ſide branches. Lord Bath's Scotch Firs, which are known to have been planted in 1696, are from two to three feet in diameter; whereas the beſt Chriſtiana Deal, although evidently one hundred years old, is ſeldom above a foot in diameter; and its knots, which denote the ſize of its ſide branches, are ſmall and inconſiderable, therefore evidently appearing to have grown ſlow and cloſe together. We have a cart-houſe on Lord Bath's eſtate, which was built above eighty years ago out of ſmall Firs, which is now perfectly ſound and upright; and, for the laſt twenty years, all the carpenters of the country have uſed ſmall Firs for rafters, &c. with ſucceſs, and no timber is more ready ſale. The old Firs of 1696 are worth from 18d. to 21d. per foot, and thoſe of thirty years old, if tolerably ſtrait, yield a ſhilling. Oak trees of thirty years old are not worth above 9d. per foot, and beech not above 6d. In fact, neither

neither of them can be called timber, or properly uſed as ſuch, at thirty years old.

1ſt, It ought alſo to be remarked, that although Fir timber is worth individually more, per tree, than Oak or Beech of *the ſame ſize*, it will nevertheleſs grow faſter and thicker together than any other trees. *Four Firs* will grow where *one Oak* or *Beech* will grow; for Firs are the better, and deciduous trees the worſe, for being crowded.

2dly, That a great deal of poor heathy ſhallow land, which will produce Scotch Firs in the greateſt perfection (and a great deal of the land planted by Lord Bath is of that deſcription), will not grow Oak or Beech *at all*, nor in fact any thing but Scotch Fir. Even Larch has failed univerſally on all thoſe ſpots where the upper ſtratum is peat.

Having lately had occaſion to cut ſome rides through ſome extenſive Plantations of Scotch Firs which were planted juſt thirty years ago, I meaſured the land, and the trees which were cut off it, very exactly, and

and the following reſult ſhews that the profit of planting Scotch Firs has been full SEVEN PER CENT. COMPOUND INTEREST; whereas no plantation of deciduous trees, within my knowledge, has paid *five* per cent. *ſimple intereſt*. Indeed we uſually reckon, in valuing eſtates for ſale, that the common growth, even of Elm Timber, on its moſt favourite ſoils, is ſeldom equal to more than three or three and a half per cent. ſimple intereſt.

	£.	s.	d.
336 Scotch Firs, of 30 years old, cut upon a ſtatute acre, average meaſure 3 feet per tree, valued at only 10d. per foot, viz. 2s. 6d. per tree, amount to, *per* acre - - -	42	0	0
At the time of planting, this land, then newly incloſed from a common, was not worth above 2s. per acre, per annum, which, at twenty-five years purchaſe for the fee-ſimple, amounts to	2	10	0
And the coſt of the trees and planting was not above	3	0	0
Total expence per acre, even ſuppoſing the land to be annihilated	£.5	10	0

£.5 : 10s. principal will increase, in thirty years, as follows:

at 5 per cent *simple* interest, to only	£.	13	18 0
at 5 per cent *compound* interest, to		23	15 5
at 7 per cent *compound* interest, to		41	17 4

So that the Scotch Ews, which have increased £.5 : 10s. principal to £.41 in thirty years, have paid upwards of 7 per cent. compound interest.

The

The SILVER MEDAL was this Seſſion voted to JOHN PHILLIPS, of Ely, Eſq. for the following Communications relative to the making Plantations of Oſiers, with regard both to the Seaſon for planting, and the Kinds adapted to each particular Soil.

SIR,

SINCE I had the honour of addreſſing the Society, I have made many experiments on different ſoils, with the view of aſcertaining which are moſt appropriate to Oſier Plantations; and which, of the almoſt infinite variety of Oſiers, are beſt adapted to the different ſoils; but as my Plantations are *chiefly* in the Fens, I have directed my attention more particularly to determine what ſpecies of Oſiers are moſt profitable in a Black Peat Soil, and which is the moſt advantageous way of planting them, and at what ſeaſon

of the year. It would have been of much public utility, if the baſket-makers had given a ſpecific deſcription of the beſt kind of Oſiers, the planting of which they wiſhed to be encouraged by premiums. The planters who intended becoming candidates for the rewards or honours of the Society, would in that caſe have procured thoſe only; much expence would have been ſaved to other gentlemen as well as myſelf, and a very conſiderable addition would have been made in our Plantations to the ſtock of the beſt Oſiers which are imported from abroad. As we have no generic or ſpecific terms, I will endeavour to give you a plain vulgar account of thoſe only which are ſelected by the moſt experienced planters in this neighbourhood. Oſier, in common parlance, is a word of very indeterminate ſignification: it is certainly a ſpecies of the Salix, but admitting of many varieties. I have endeavoured to reduce them to two Claſſes; firſt, thoſe which are ſo called by the growers and baſket-makers, diſtinguiſhable by their more blunt, mealy,

or

or downy leaf; and, ſecondly, thoſe that have a leaf more pointed, ſmooth, and green, reſembling that of a myrtle. Of the firſt claſs I have nine or ten varieties, all of which I ſhall eradicate, ſave one, viz. that which is called the Grey or Brindled Oſier. It has, in common with the others, the light-coloured leaf, but known by having its bark ſtreaked with red, or blood colour. It has not been long introduced into this country. It grows vigorouſly, is very hardy and tough, and bleaches well. All the others, of the firſt Claſs, delight in a wet ſoil, and will flouriſh even in the moſt barren kind of Peat; but they are coarſe and ſpongy, have a large pith, are brittle, and very periſhable: they are, however, uſed ſometimes for the ſtouter parts of large baſkets, and, unpeeled, for wine hampers. They grow quick and large, and a ſmall number will fill the ell bunch, by which all Oſiers are ſold; they are profitable to thoſe growers only who live near London, or whoſe plantations are contiguous to water-carriage. I have ſome acres of them; and were I to ſend

them there by waggon, which is our only mode of conveyance, they would not pay for the carriage. In time of war, when our intercourſe with France and Holland has been interrupted, where they grow better ſorts, they have been too much reſorted to, which has brought our baſkets into diſrepute, and leſſened the demand for them in foreign markets: this, together with the enhanced price of inſurance, accounts for the fact, that war makes Oſiers in this kingdom both dear and cheap; that is, dear at the commencement for want of importation, and cheap during its progreſs for want of exportation, after having been manufactured into baſkets, and other works to which they are applied. Of the ſecond Claſs are, 1. The Welch, both red and white; the red having the preference, and ſaid to have been brought originally from Wales; they form an almoſt eſſential part of every Plantation, as no other is fit to tie the bunches after the rods have been peeled and whitened. A bunch is formed by compreſſing the Oſiers in an iron hoop or band, of an ell in circumference;

ference; eighty bunches make a load, which four years back ſold at £.18; it is not now worth £.12. The beſt land will produce a load on an acre, but half a load is not a very bad crop on bad land. The expence of weeding, renewing, cutting, and peeling, is about £.5 per acre, when the buſineſs is well done; but they often go unweeded, when they are ſold at a low price, to the great decay of the Plantations. The Welch are alſo uſed to tie Reed Sheaves for thatch; they are ſo bitter, that cattle will not browſe them, unleſs driven to the extremity of hunger, and rats will not touch them, although they will deſtroy almoſt every kind of bandage. They were formerly grown for the coopers, to bind their hoops; but for this uſe they have long given way to the Hazel; they are very tough and durable, and would rank with the beſt ſorts for the uſe of baſket-makers, were they of a better colour when peeled.

2. The *Weſt Country* Spaniard. It is ſuppoſed to have been firſt introduced into the Weſt of England from Spain. It is very dif-

ferent from the *Spaniard*, which is a ſpecies of the larger Willow, and uſed for hedging-wood and hurdles. In the Iſle of Ely it was long in high eſtimation, until others were introduced, ſuppoſed to be ſuperior in ſome of their qualities: the bark is of a blueiſh grey colour; it grows ſtout and ſtately, and objects to no ſoil; the grower, however, urges againſt it what he thinks to be a ſtrong objection, viz. that it produces a ſmall crop. It bears, comparatively, only a few ſhoots on a head: this is certainly true; but what then? then it is not ſo profitable. I admit it, provided only an equal number be planted on an acre with thoſe that bear more ſhoots; but why ſhould the grower tie himſelf to plant an equal number of different ſorts on a given quantity of land? The nurſeryman is governed by no ſuch rule; and the farmer would become an object of pity, were he to ſow an equal quantity of every ſort of grain on an acre. The Society is bound to draw ſome line to prevent fraud, but the planter and farmer ſhould be guided only by the

burden

burden which the land is capable of bearing. My experience teaches, that an acre of land will carry, of this ſort, 14000 plants with more eaſe than 12000 of the beſt new kind.

3. I have not been able to learn where the *new kind* originated. It is well known every where; and although it muſt be much older in ſome counties than others, it is univerſally called by that name. There are, however, two ſorts; the other is called the *laſt* or *beſt new kind*. The bark of the former is of a light brown colour; that of the latter reſembles ruſty iron, with light longitudinal ſtripes: it is on that account called, by ſome perſons, the *Corderoy*. When the new kind was firſt introduced into the Iſle of Ely, it ſoon expelled moſt of thoſe of the firſt claſs: the few that are retained are uſed by the fiſhermen to make grigs, or twig tunnels, to catch eels and other fiſh; it ſtill maintains conſiderable reputation, but yields to the *laſt* new kind, which, beſides poſſeſſing moſt of the beſt properties, produces, on an average, at leaſt four ſhoots on the head more

than any other, and it will grow well in a dry mellow ſoil. As its ſhoots are more numerous, a greater ſpace ſhould be allotted to it, to draw nouriſhment from the earth, and to admit the rays of the ſun and circulation of air, ſo neceſſary to the growth of every plant; 11000 an acre is quite ſufficient on good land. But the beſt of all, conſidered in a public or political view, is

4. The FRENCH. Under this name the *Ground-Setter* is frequently ſold; and I am informed that it was ſo called, from its tendency, when neglected, to direct its ſhoots amongſt graſs and weeds parallel with and near the ground: it is of the ſame quality, colour, and appearance with the French, except that it has at the point a tuft formed of leaves curled inwards, which has the appearance of a ſmall withered roſe-bud. You will eaſily know both from all others, thus: draw them through your fiſt, from the top to the bottom, and the leaves will ſnap off with the brittleneſs of glaſs. The *Ground-Setter* grows very ſlowly, and is rejected by the

the planters on that account: the *French*, although more luxuriant, is alſo comparatively of ſlow growth; and it requires a great number to make up the bunch; but it is exceedingly taper, pliant, cloſe-grained, tough, and durable. The baſket-makers are more deſirous of it than any other, as it is beſt ſuited to make the ſmaller and finer baſkets, hats, fans, and other delicate articles. As it is much diſregarded by the planters in this kingdom, the baſket-makers, in times of peace, import vaſt quantities from France, the Auſtrian Netherlands (Belgium), and Holland, where it is cultivated with great ſucceſs. It is ſingular that it ſhould be imported cheaper than our planters can afford to grow it; the lands in France and Holland are much dearer than our fens. As an article of commerce, or as a raw material, it deſerves every encouragement that the public or individuals can give it; and if it be not ſo profitable to the grower, it is always of ready ſale.

I have

I have heard of another ſort, which is well ſpoken of, called the Red Kent Wlilow; but I am doubtful whether I am poſſeſſed of it or not: we have in this neighbourhood a very hard, tough Willow, of a reddiſh colour, of which hurdles, cribs, &c. are generally made. I planted it laſt year, in footſets, for the uſe of baſket-makers; but as the experiment is now only in proceſs, I can ſay nothing of its utility. I hope that thoſe who ſhall hereafter become candidates for the Premiums will give a deſcription of the ſorts planted by them; and of all others that are moſt eſteemed in their neighbourhood, perhaps ſome of your correſpondents, who may not be candidates, will favour the public with their knowledge on the ſubject.

As to the moſt advantageous way of planting, there is ſome difference of opinion. The different qualities and ſituations of ſoils are not always attended to; we are often deceived by a ſingle experiment; what may hit or fail one year, may be the reverſe the next; it requires a diverſified ſeries of experiments

riments to enable us to form a right judgment. My plantations of the year 1794, made on banks of ſoil thrown out of the ditches on each ſide, and thoſe made on the level ground, flouriſhed equally well that year. It was difficult to judge of them the next year, for they had been more or leſs injured by the vaſt inundation of all the fens of the Iſle of Ely, and which was not removed in many places until late in the ſummer; but in the third year the advantage was manifeſtly in favour of thoſe which had been made on banks or elevated beds.

We have in this diſtrict from ten to fourteen inches of vegetating ſoil on the ſurface; immediately beneath it is a black or brown barren peat, of a looſe texture. In the drought of ſummer, when the moiſture is exhaled from the upper and more tenacious ſoil, the water inſtantly filters through the peat, and leaves the plants deſtitute of their beſt nouriſhment; but when the peat is thrown upon the ſolid earth, it will prevent the rays of the ſun from penetrating to the bottom;

bottom; and when the water falls in the ditches, the lower and more tenacious ſoil will retain a ſufficient quantity of it for the uſe of the plants. Care ſhould be taken to inſert the ſets through the peat into this lower ſtratum: they will ſtrike their radicles the firſt year into this more ſolid earth; but when the peat has been meliorated by the ſun and air, and been compreſſed, and become more adheſive, they will ſtrike higher in the ſtem, until the radicles or fibres approach the ſurface. It muſt be admitted, that this is an expenſive method, and leſſens the quantity of land to be planted upon. To remedy this inconvenience, I lay out my land in beds or barrows, of eighteen feet wide; ditches, of nine feet wide, are dug on each ſide; the top of which, fourteen inches thick, is laid on the barrows; turf for fuel is then dug in the ditches, the expence of which is about 1s. 8d. a thouſand; they are ſold for 2s. 6d.

The beds or barrows, now conſiſting of about two feet and a half thick of ſolid earth, above the ſurface of the peat, are planted

planted the following autumn, and produce good crops: when the water is ſufficiently low, I caſt upon theſe beds a fetid vegetable ſubſtance, vulgarly called Bear's Muck; it reſembles wet ſhag tobacco, and lies under the peat; it is extremely uſeful to the plants; and although it is, in its primitive ſtate, a perfect *caput mortuum*, when expoſed ſometime to the air it putrifies, affords mucilage, and becomes a good manure. In embanked diſtricts, ſubject to frequent and long inundations, two other advantages are obtained from theſe raiſed beds: the Oſiers are thereby removed farther from the reach of the ice, which on a thaw floats into the lower plantations, and does them much injury. When the waters are high, in the cutting or planting ſeaſon, the beds are more acceſſible than the level ground; but having had the command of the water laſt ſummer, by a mill or engine, I dug out the peat into turf, having firſt laid aſide the upper ſpit; the turf being removed, I ſhall return this ſpit into the ditch, and plant upon it; thus no ground will be loſt.

In the year 1796 I made an experiment on an acre of land of this quality; I ploughed one half of it, and the other half was dug with the ſpade, about fourteen inches deep; the ſod of that thickneſs was inverted by the ſpade. The plantation on the ploughed land was very weak, and failed in many places; that which followed the ſpade did better; but they are both ſo bad, that they muſt be renewed this year. On the former, the beſt land lay uppermoſt, which, when deprived, by the heat, of its moiſture, derived no aſſiſtance to ſupport the plants from the peat that lay underneath; on the latter, ſome of the beſt land was laid in the ground, but not deep enough to retain a ſufficient quantity of moiſture. The preceding year I planted in a piece contiguous, on banks as before deſcribed; and there the Oſiers do well.

I have a rich loam lying on a bed of potters clay: the ſituation is low, and expoſed to the water; French Oſiers were very ſcarce, and I could procure only a few hundreds laſt year; determined to eke them out

as

as far as I could, I laid them down in their whole length, and pegged them on the ground; they ſtruck good roots into the earth, and threw out abundant ſhoots.

This experiment, together with that of planting upon banks, will enable us to anſwer the queſtion often aſked, "Of what length ought the ſet to be?" It depends entirely upon the nature and ſituation of the land. There ſhould be ſo much of it in the ground as to enable it to procure moiſture, and ſo much of it out of the ground as to make it acceſſible in the cutting ſeaſon, where much weeding is not required: and where there are no floods, or where they ſubſide quickly, there ought to be very little of it out of the ground. The nouriſhment, in that caſe, will paſs immediately from the roots to the rods or ſhoots, without the burden of firſt ſupplying the head or ſtock.

Every experiment that I have made confirms my opinion, that the autumn, and not the ſpring, is the moſt proper ſeaſon for planting. Thoſe who think with me ſay, that the

the fall of the leaf indicates the proper time to cut the ſets; it certainly is ſo in general; but the leaf of the Oſier, like that of the Oak and other trees, will ſometimes prolong its departure. The ſtagnation of the juices is the true criterion by which to judge, not on account of the ſet, but of the trunk, leſt, if you amputate it whilſt the juices are in circulation, it ſhould bleed to death. I have planted in the firſt week of October, and the ſets appeared to remain torpid for the remainder of the year; about Chriſtmas I took up ſeveral of them, and was much pleaſed to find that they had ſtruck root, although they had given no outward appearance of vegetation from the time of planting. It is probable that the earth retains a ſufficient portion of the ſummer heat until the autumn, to give life to plants at the root, when the atmoſphere may at that time be ſo cold as to diſcourage any exertions above-ground; and perhaps nature may be more vigorous when her operations are confined to one point.

When

When you plant in ſpring, the ſet ſeems (if I may ſpeak ſo figuratively) to have its attention diſtracted by two operations not very homogenous, the one upwards, the other downwards. It is impelled to ſhoot its radicles into the earth, to form its ſtability, and procure ſuſtenance; and it is called upon at the ſame time to put forth its leaves and branches. To ſpeak without a figure, the prolific ſun and air induce it to exhauſt the juices, in extending the ſhoots before the roots are ſufficiently ſtrong and large to ſupply the drainage; hence it is that, contrary to the commonly received opinion, a warm and dry ſpring is always injurious to the young plantations. If there be not ſufficient rain to convey ſuſtenance by the leaves and bark, in aid of the ſmall quantity procured by the root, the plant muſt die or dwindle; and it is very obſervable, that the firſt vigour of the late-planted ſet is a ſure prognoſticator of its decline or diſſolution. In the autumn of 1795 I made a ſmall plantation, and on the remainder of the

piece I planted in March following. In the beginning of May, thoſe laſt planted were the forwardeſt, which, for a time, ſtaggered my opinion of the moſt proper time for planting; but in June, thoſe planted in the autumn had much the advantage, and have continued to grow well: thoſe that were ſet in the ſpring, decayed in ſummer, and many of them died. When the fibres have been formed before the winter, or when a tendency to form them has been obſerved, by the ſwelling of the bark, and particularly at the eye, the plant is enabled to charge itſelf with a ſufficient portion of the juices to anſwer the demand of ſpring.

The rule, therefore, which I lay down for myſelf, where no obſtructions are raiſed by the water, is to plant as early in the autumn as I can cut the ſets, without endangering the parent ſtock.

I am, &c.

J. PHILLIPS.

Ely, Feb. 3, 1798.

Mr. MORE.

In the Seſſion of the year 1796 and 1797 (ſee Vol. XV. page 289) Mr. HARPER, of Bank-Hall, in Kirkdale, Lancaſhire, communicated to the Society the following Obſervations relative to the different modes of cultivating Wheat; but as the terms of the Society's Advertiſement were not fully complied with, the Quantity of Land cultivated in each mode not being ſo great as required, Mr. HARPER could not be conſidered as entitled to the Premium offered: yet, reflecting on the judicious Obſervations contained in the Paper, and the advantage it may be to the Public to have thoſe Obſervations laid before them, the Society voted to Mr. HARPER their SILVER MEDAL, and the Paper is now printed.

SIR,

I TAKE the liberty of addreſſing to the Society for the Encouragement of Arts, Manufactures, and Commerce, the

following ſtatement of the cultivation of a field on the Bank-Hall eſtate, in my poſſeſſion, containing (according to a late ſurvey) twelve acres two roods twelve perches (ſtatute meaſure), with an account of the management of a crop of Beans, and produce thereof, the preſent year 1796, and the preparations, by ploughing and harrowing, as well as the different methods made uſe of in ſowing the ſame with Wheat the preſent autumn.

The field had been a meadow for thirty years, and had been regularly manured, by which means the hay it produced began to grow coarſe, and not ſo nutritive as might be wiſhed; for which reaſon I ploughed it up, as ſoon as the after-graſs was eaten off, in the autumn of 1793; and, in the ſpring of the year 1794, ploughed it twice more, and ſowed it with barley, which produced ſeven quarters per acre. In the autumn of 1794 I ploughed it into one-bout ridges, to lie by the winter; and, in the ſpring of the year 1795, I ploughed it twice more, and

ſowed

ſowed it with barley again (yet ſtill without any manure), which produced ſix quarters per acre: the crop was much lodged, otherwiſe the produce would have been equal, if not ſuperior, to that of 1794. In the autumn of 1795 I ploughed it again into one-bout ridges, to lie by the winter; and in February 1796 I ploughed the ridges acroſs, and then manured it with about ten tons of dung to the acre, harrowed it in, and on the ſeventh day of March began drilling it, making the drills eighteen inches aſunder; by the twenty-third of the ſame month it was all ſown. Eight acres were of the early Blue Bloſſom, which were ſown by hand in the drills, and the drills were harrowed down to cover them, which left the land quite even: the other four acres and a half were Mazagan Beans, which were laid in the drills by hand; for, by being large, they do not ſow well either by the hand, or by a machine; they were harrowed, to cover them, the ſame as the others. The produce of the Blue Bloſſoms was five

quarters and a half per acre; the produce of the Mazagan, five quarters per acre. The quantity of ſeed ſown, per acre, of the Blue Bloſſom, was one buſhel and twenty-ſix quarts; the quantity of the Mazagan was two buſhels per acre.

Bank-Hall, Kirkdale, Oct. 27, 1796.

Expence of Drilling.

	£.	s.	d.
To drilling 12 acres 2 roods 12 perches, at 3s. per acre - - - - -	1	17	9
To ſowing 8 acres of Blue-Bloſſom, at 9d. per acre - - - - - -	0	6	0
To laying in the drills, by hand, 4 acres 2 roods 12 perches of Mazagan, at 2s. per acre	0	9	2
To covering beans in drills, at 1s. 6d. per acre	0	18	10
To horſe-hoeing twice, at 2s. 6d. per acre -	3	3	2
To hand weeding, at 1s. per acre - -	0	12	6
To reaping (by hand-cutting), at 7s. per acre	4	7	6
To 2 quarters 7 buſhels 20 quarts of Seed-Bean, at 2l. 5s. per quarter . - -	6	12	10½
	£.18	7	9½

Comparative

Comparative Statement of (what would have been) the Expence of Broad-Caſt.

	£.	s.	d.
*To ploughing the land into butts, for the ſeed to be ſown, at 6s. per acre - -	3	15	0
To ſowing Beans broad-caſt, at 6d. per acre	0	6	0
To harrowing ſeed in, at 3s. per acre -	1	17	6
To dibbling in ſuch Beans as were left uncovered by the harrow, at 6d. per acre	0	6	0
To mowing, gathering, and binding up, at 5s. per acre - - - - - -	3	2	6
To 5 quarters 6 buſhels of Seed-Beans, at 2l. 5s. od. per quarter - - -	12	19	3
Broad-Caſt	£.22	6	3
Drill Huſbandry	£.18	7	9½
Balance in favour of the Drill Huſbandry	£3	18	5½

* N. B. The previous working of the land is not brought into this account, but taken in the ſame ſtage of Drill and Broad-caſt management.

OBSERVATIONS.—Charging every expence attending both the Drill and Broad-caſt Huſbandry, it appears, that double the quantity of ſeed is uſed when ſown broad-caſt, than when drilled in drills eighteen inches apart; and the produce of a crop of Beans is (with me) moſtly one third leſs in quantity per acre by the Broad-caſt Huſ-

dry than by the Drill Huſbandry. The time of reaping the above crop of Beans was the laſt week in September, which was three weeks later than I ever reaped before, though ſown equally as early in the ſpring; but this backwardneſs was occaſioned by the ſeaſon, not by the Drill.

Mode of uſing the Straw.—Some of the ſtraw is uſed for litter, and ſome for cutting, and mixing with light corn for young ſtock, ſuch as colts, &c. and for cart and plough horſes; and when it is well got, there may be a great ſaving of hay; for, at the time of ſupping the horſes up, after they are bedded, give every horſe a ſmall armful before him, and he will need little or no hay in his rack, and will equally work as well, and keep his condition, as if his rack was ſupplied with hay; and that part of the ſtraw which he does not eat, ſerves for freſh litter for him the following night, and (with me) I think it makes the beſt manure, by putrifying ſo ſoon.

Nature

Nature of the Soil.—The ſoil of this field is a ſtrong hazel loam, about ten inches deep, and under that is a brown loamy ſand, twelve inches deep; under which ſand, in a part of about four acres, is a yellow rock: in all other parts of the field (under the ſand) there is marl, about four yards deep, under which is yellow ſand.

Horſe-hoeing.—The horſe-hoeing was performed in the following manner. The land being left quite even when the Beans were covered, I have a ſmall light machine, in the form of a plough, which is only two inches broad on the ſole or bottom part (which is alſo uſeful for hoeing potatoes); this machine was drawn up the ſide of each row of Beans, for the firſt hoeing, when they were about three inches high: the inſtrument, being ſo narrow, left a ſmall rib of earth in the centre of the drill; and, when they were about twelve inches high, the ſecond hoeing was performed with a double-mould board-plough, with two reeſts, four inches

inches broad on the ſole part, which was drawn up the centre of the drill, and divided the rib of earth, before left, to each row of Beans, which then made a perfect drill.

Sowing Wheat.—After the Bean-crop was cleared off the land, the firſt preparation for the ſowing of Wheat, was running the plough acroſs the drills, as deep as the bottom of the drills; this being done, I harrowed it with a harrow (which I call the cultivating harrow), which brings moſt of the weeds, &c. that are within the land, to the top. It was then run over with a common harrow, and all the weeds, &c. picked off, and laid by for compoſt, with the addition of horſe-dung, &c. It was then ploughed into butts of three yards broad, and thirty yards were ſown broadcaſt, and thirty yards ſown in drills (at nine inches), all through the field, which is now finiſhed, and is little inferior, for cleanneſs and good condition, to a ſummer fallow.

HENRY HARPER.

The ſubſcribers have viewed the field above mentioned, in Mr. Henry Harper's farm, and have conſulted the account ſtated, of the meaſurement of the field, from a plan lately taken, and have ſeen the Bean-drills, after the crop was reaped, but before ploughed up again for wheat; and have meaſured the diſtance of the drills, each of which correſpond as above ſtated. The crops of Beans, ſo far as might be collected from the appearance of ſtubble, appeared good, and the land clean in general, only from chickweed. We have alſo again viewed the land of the ſame field, after being ſown with Wheat, and finiſhed off in a complete manner, and examined the labourer who aſſiſted in thraſhing a part of the Bean-crop, to aſcertain the produce of the whole land; and believe, ſo far as we have obſerved from the information obtained, that the contents of the letter are truly and fairly ſtated.

HENRY HEATHCOTE,
Vicar of Walton.
S. HOLT,
Surveyor of Agriculture for the county of Lancaſhire.

Walton, Oct. 27, 1796.

Mr. MORE.

SIR,

BY laying the incloſed paper before the Honourable Society for the Encouragement of Arts, Manufactures, and Commerce, you will oblige,

SIR,

Your moſt obedient Servant,

HENRY HARPER.

Mr. MORE.

N. B. If a ſample of the Beans, which is very fine, be requeſted, it ſhall be ſent on the ſhorteſt notice.

To the Society for the Encouragement of Arts, Manufactures, and Commerce.

My LORDS and GENTLEMEN,

THE following experiments, with remarks on the different modes of the culture of Wheat, was executed in a field, of eleven ſtatute acres, in my farm, in the month of October, 1795. Twenty yards broad

broad was ſown broad-caſt, and then twenty yards broad in the different modes hereafter explained; ſo that no one mode ſhould have the advantage of the other, of having either better land, or in higher condition, and which had all the ſame dreſſings, &c. to the time of putting in the ſeed.

EXPERIMENT I.

The old mode of broad-caſt produce, was fourteen threave to the acre, clear of the tithe, and four buſhels in the threave. Weight 61lb. ½ per buſhel, neat, which is 7 quarters per acre, at 58s. per quarter, - - £.20 6 0

Straw, weight 300lb. per threave, at 3d. per ſtone, of 20lb. is 3s. 9d. per threave, and per acre, - - - 2 12 6

£.22 18 6

To 105lb. of ſeed, at £.5 2s. 8d. per quarter,* £. 1 2 5½

Sowing by hand, broad-caſt, per acre, 0 0 6

1 2 11½

Amount of Corn and Straw, per acre, £.21 15 6½

* The market price of Wheat is taken at the time of ſowing, and at the time of reaping, which makes ſo conſiderable a difference in the value, viz. £.2. 18s. 0d. and £5. 2s. 8d.

EXPE-

EXPERIMENT II.

Cooke's Drill. Produce, was 13 threave to the acre, clear of the tithe, and 4 buſhels in the threave, weight 61lb ½ per buſhel, neat, which is 6 quarters and 4 buſhels per acre, and, at 58s. per quarter, amounts to - £.18 17 0

Straw, weight 300lb. per threave, at 3d, per ſtone, is 3s.9d. per threave, and per acre 2 8 9

£.21 5 9

	s.	d.			
To 87lb. of ſeed, at £.5 2s. 8d. per quarter, - -	18	7¼			
Sowing the ſeed with the drill, per acre,	1	6			
Covering the ſeed after drilling, per acre, . -	1	6			
Twice horſe-hoeing, at 1s. 6d. per acre,	3	0			
			1	4	7¼

Amount of Corn and Straw, per acre, £.20 1 1¼

EXPERIMENT III.

Drills at nine inches, ſown by the hand. Produce fifteen threave to the acre, clear of the tithe, and 4 buſhels in the threave, weight 61lb ½ per buſhel, neat, which is 7 ½ quarters per acre, and, at 58s. per quarter, amounts to £.21 15 0

Straw, weight 260lb. per threave, at 3d. per ſtone of 20lb. is 3s. 6d. per threave, and per acre, - - 2 8 3

£.24 3 3

To

Brought forward - - -				£.24	3	3
To 105lb. of ſeed, at £.5 2s. 8d. per quarter,	£.1	2	5½			
Sowing ſeed, broad-caſt, per acre,	0	0	6			
Covering ſeed, per acre,	0	1	6			
Twice horſe-hoeing at 1s. 6d. per acre,	0	3	0			
				1	7	5½
Amount of Corn and Straw, per acre,				£.22	15	9½

EXPERIMENT IV.

Drills made at 12 inches, from centre to centre, and three rows dibbled right up the middle of the drill, at three inches from plant to plant, and one grain of corn in a hole.

Produce was twelve threave per acre, clear of the tithe, and 4 buſhels and 2 pecks in the threave, weight 62lb. per buſhel, neat, 6 qrs. 6 buſh. per acre, at 58s. per quarter, is - - -				£.19	11	6
Straw, weight 340lb. per threave, at 3d. per ſtone of 20lb. is 4s. 3d. per threave, and per acre, - - -				2	11	0
				£.22	2	6
To 35lb. of ſeed, at £.5 2s. 8d. per quarter,	£.0	7	3½			
Dibbling, per acre,	0	18	0			
Covering ſeed after dibbling, per acre, - -	0	1	6			
Twice horſe-hoeing, at 1s. 6d. per acre - -	0	3	0			
				1	9	9½
Amount of Corn and Straw, per acre,				£.20	12	8½

EXPE-

EXPERIMENT V.

Dibbled on the land, three rows, at three inches from plant to plant, and one grain of corn put in a hole, and a ſpace left between every third row, for horſe-hoeing.

Produce, eleven threave per acre, clear of the tithe, 4 buſh. 2 pecks in the threave, weight 62lb. per buſhel, neat, 6 qrs. 1 buſhel and 2 pecks, per acre, at 58s. per quarter, is - - - £.17 18 10½

Straw 320lb. per threave, at 3d. per ſtone of 20lb. is 4s. per threave, and per acre, 2 4 0

£.20 2 10½

To 35lb. of ſeed, at £5. 2s. 8d. per quarter, is	£.0 7 3½		
Dibbling, per acre, - -	0 18 0		
Covering ſeed after dibbling, per acre, - -	0 1 6		
Twice horſe-hoeing, at 1s. 6d. per acre, - -	0 3 0		
		1 9 9½	
Amount of Corn and Straw, per acre,		£.18 13 1	

EXPERIMENT VI.

Dibbled on the land, two rows, at three inches from plant to plant, and put one grain of corn in a hole, and a ſpace left between every ſecond row for horſe-hoeing.

Produce 11½ threave, per acre, clear of the tithe, and had 4 buſhels and 2 pecks in the threave, weight 62lb. per

per bushel, neat, 6 qrs. 3 bushels 3 pecks, per acre, at 58s. per quarter, is - - £.18 15 2½

Straw, 340lb. per threave, at 3d. per stone of 20lb. is 4s. 3d. per threave, and per acre, 2 8 10½

£.21 4 1

To 31lb. of seed, at £.5 2s. 8d. per quarter, - £.0 6 7½

Dibbling, per acre, - 0 18 0

Covering the seed, per acre, 0 1 6

Twice horse-hoeing, at 1s. 6d. per acre, - - 0 3 0

1 9 1½

Amount of Corn and Straw, per acre, £.19 14 11½

EXPERIMENT VII.

The land dibbled all over, at 3 inches from plant to plant, and one grain of corn put in a hole.

Produce 10½ threave per acre, clear of the tithe, 4 bushels 2 pecks in the threave, weight 61lb. ½ per bushel, neat, and 5 qrs. 7 bushels 1 peck, per acre, at 58s. per quarter, is - - £.17 2 6½

Straw, 300lb. per threave, at 3d. per stone of 20lb. is 3s. 9d. per threave, and per acre, 1 19 4½

£.19 1 11½

	Brought forward,			£.19	1 11½
To 40lb. of ſeed, at £.5 2s. 8d. per quarter, - -	£.0	8	6½		
Dibbling, per acre, - -	1	1	0		
Covering the ſeed, per acre,	0	1	6		
				1 11	0½
Amount of Corn and Straw, per acre,				£.17	10 10½

EXPERIMENT VIII.

The land dibbled one row, at four inches from plant to plant, and four grains of corn put in every hole, and a ſpace left between every row for horſe-hoeing.

Produce ten threave per acre, clear of the tithe, 4 buſhels and 2 pecks in the threave, weight 60lb. per buſhel, neat, is 5 qrs. 5 buſhels per acre, at 58s. per quarter, is - - - - -				£.16	16 3
Straw, 300lb. per threave, at 3d. per ſtone of 20lb. is 3s. 9d. per threave, and per acre,				1	17 6
				£.18	3 9
To 45lb. of ſeed, at £.5 2s. 8d. per quarter, -	£.0	9	7½		
Dibbling, per acre, - -	0	12	0		
Covering ſeed, per acre, -	0	1	6		
Twice horſe-hoeing, at 1s. 6d. per acre - -	0	3	0		
				1	6 1½
Amount of Corn and Straw, per acre,				£.16	17 7½

Remarks

Remarks upon the different modes of Culture.

EXP. I. I prefer the old mode of broad-caſt upon ſtrong heavy ſoils, ſuch as marl or clayey, or on any land that lies on a cold bottom, becauſe ſuch land requires to be laid round, and in ſmall ridges; in conſequence of which the drill will not work well, and dibbling would not anſwer on ſuch land.

EXP. II. Cooke's Drill may anſwer, where the land is flat, even, and dry.

EXP. III. I prefer making the Drills at nine inches diſtance, and ſowing the land broad-caſt, but with one third leſs ſeed than broad-caſt; for though there was more ſtraw in this mode than any other of the experiments, by being ſo thick in the Drills, and the ſtraw was lighter, not weighing ſo much to the threave, and the corn appeared not quite ſo well fed, yet, when cleaned, the produce was the ſame weight per buſhel, and more in quantity than any other mode. Therefore I prefer this mode to Cooke's

Drill; for I think it will do with full as little ſeed.

Exp. iv. This mode of dibbling I prefer before any other; for the land was dryer, and, in conſequence of the corn being dibbled up the centre of the drill, and by being dryer, the plants did not mourn ſo much as the others when the weather was wet.

Exp. v. This mode is not ſo good as two rows together; for, when they came to be hoed, the middle row did not receive ſo much freſh earth as the other two.

Exp. vi. This mode, of two rows, I prefer before three; for when they came to be hoed, they flouriſhed the moſt.

Exp. vii. This mode, of dibbling the land all over, does not do well; for the plants were too thin, and could not be hoed. They did not ſucceed well.

Exp. viii. This mode ſucceeded the worſt of any; for the ſtems from the plants appeared always more weakly than any of the other modes, although they had rather the advantage of the hoe.

If

If dibbling be practiſed, it ſhould be on light dry land; but upon any land the expences* of labour will over-balance the ſaving of ſeed: for the time, and number of hands it takes, prevent any attempts on a large ſcale, at leaſt to do it in proper ſeaſon, and while the land continues in condition; for if it be too wet, it will not dibble at all: and I do not think it will anſwer well on any land; for it is impoſſible to make a hole in the land that you can drop a ſeed into, but it will leave a kind of glaze round the hole, which being ſoon filled with looſe earth, when rain falls, it holds water, and ſtarves the plant. I thought this was the caſe with mine: and if dibbled at the ſame time when the drill or the broad-caſt is

*.It has been frequently obſerved that dibbling may be performed by children, and therefore the expence is light. It is true that the fingers of young people may be better adapted to handle ſo ſmall a grain as wheat, than the fingers of grown people; yet every one knows the inattention and thoughtleſsneſs of childhood: and becauſe ſuch ſeeds are not ſeparated with eaſe, they will frequently drop, inſtead of one, probably half a dozen into one hole, whilſt the next, through the ſame careleſsneſs attendant upon that age, may omit the next hole; beſides, at this ſeaſon of the year, be the weather ever ſo temperate, the air is ſo cold as to produce

ſown, it will be ten days later than either, before it is ripe and ready to cut. However, after it was hoed, the dibbled came on more than the drilled. The firſt hoeing was the laſt week in March; the ſecond, the ſecond week in May. It was properly hoed, not ſcarified, for the earth was laid cloſe up to the plants. The hoeing was performed with a drill of my own conſtruction, which makes five drills at nine inches, five at twelve inches, three at eighteen inches, and three at twenty-four inches. And for hoeing, I have ſhares or ſucks, in the ſhape of a trowel, which I can fix on the points of the drills, and, by drawing it up between the drills, it divides the earth each way up to the plants, nearly equal to hand-hoeing. This drill will either drill or hoe. If the land be not quite even, it makes no alteration in the machine, for it depends on the man that holds it, to humour it accordingly as the land lies, which is eaſy to do.

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numbneſs in the extremities, to ſuch a degree as to prevent an ability to ſeparate the ſmall grains, the handling of which ſtill increaſes the degree of cold, and conſequently produces greater inactivity.—The ſize even of the leaſt bean renders the practice of dibbling more effectual in that article.

I prefer drilling to broad-caſt, on dry, weak, light, thin ſoil land, for any kind of grain, but more particularly for Wheat; for this kind of land is apt to loſe roots the latter end of March and beginning of April, which is the time the firſt hoeing ſhould take place, and which will prevent that diſeaſe.

The field on which the experiments were made, is a hazel, loamy ſoil, fourteen inches deep; two acres, bottom on a yellow rock; ſeven acres on a marl; and two acres on loamy ſand, about two feet deep, and afterwards marl. This field was marled thirty-three years ago, and has ever ſince been under the plough, nor has reſted more than having a crop of red clover, which was moſtly mown twice in the ſame year, and the ſucceeding year cropped with ſome ſpecies of grain.

In the year 1794 this field had red clover on it, the produce of which was very good. It was mowed twice; and early in the ſpring 1795 I ploughed it up, and ſowed it with vetches, which were cut off for

green crop; and as the land was cleared of the crop, it was ploughed thin; and when all the crop was cleared off, it lay about three weeks, and was then ploughed again, but not deeper than the firſt ploughing, upon which it appeared to be quite clean, and in good order. Being rather fearful of its not ſupporting ſuch a crop of wheat as I could wiſh, I made a compoſt, which was part marl and waſte ſoil, to which I put ten ſcore buſhels of lime, eighty tons of night-ſoil, coal-aſhes, ſweepings of ſtreets, &c. and, one week before it was turned over, I trenched into it, a foot deep, three hundred weight of pot-aſh, pounded fine, and turned it all over together; the lime was in its flowery ſtate: when turned, the field was all regularly ſet over with this compoſt, about twenty tons to the acre, and then ploughed up into butts of three yards broad, then ſown as above deſcribed.—The furrow was about nine inches broad, and four inches and a half deep.

But what was the cauſe of this produce being ſo much above the general average I cannot

cannot aſcertain; whether owing to the ſeaſon, or ſome unknown quality the pot-aſh might add, I cannot ſay, not having preſence of mind to keep a little of the compoſt clear of the pot-aſh. The field has produced good crops of Wheat before, and often as much, or more ſtraw, but never ſo much grain before; nor ever did I hear of ſo much corn being produced from the ſame breadth of land. And I ſhould feel ſome hefitation of laying this account before the public, were not the facts, both as to quality and quantity, confirmed by other teſtimony than my own, as will appear from the annexed certificates. The ſpecies of Wheat is the common Yellow Wheat, which I got from the South three years ago.

Although the experiments may not claim the premium offered, for a comparative eſtimate of the broad-caſt and drill-huſbandry, yet the experiments are of too important a nature to be withheld from the public, and upon too extenſive a ſcale, not to render them of importance. So far as my reading goes,

goes, I have never heard of any thing of equal extent and variety. I can venture to affirm, that nothing is aſſerted herein but the truth, and the reſults and facts have been carefully aſcertained; but the difficulty, the care, the attention and labour, to keep every part ſeparate, and to weigh each part, is a degree of trouble, of which thoſe who have not experienced ſuch things can have no conception; nor ſhould I have undertaken the taſk, had I previouſly known the great care and circumſpection neceſſary to the proper inveſtigation of ſo many circumſtances. Under all theſe embarraſſments I am not diſcouraged, but propoſe to proſecute the ſubject, and endeavour to aſcertain the comparative difference betwixt the Drill and Broad-caſt Huſbandry, having nearly thirty ſtatute acres under that management this ſeaſon, a very ſmall portion of which is dibbled, by way of confirming or confuting the experiments herein mentioned. I rely upon the candour of the Society, to whom this Paper is addreſſed, for a favourable interpretation

terpretation of my motive; and if farther ſanctioned by any honorary or pecuniary marks of their approbation, ſuch tokens of their regards will be gratefully accepted, and thankfully received by,

My Lords and Gentlemen,

Your obedient humble Servant,

Bank-Hall, Kirkdale,
Feb. 1, 1796.

HENRY HARPER.

WE, the underwritten, were requeſted by Mr. Harper to view the field intended for experiments, previous to its being ſown, but after it had been parcelled out into different lots, of twenty yards broad each, as deſcribed; and afterwards viewed it again, when the proceſs of ſowing, dibbling, and drilling, had commenced. We have no doubt in ſaying that, from what we ſaw, and from Mr. Harper's well-known veracity, the account here given is truly ſtated.

HENRY HEATHCOTE,
Rector of Walton.

JOHN HOLT,
Surveyor of Agriculture for the County of Lancaſter.

WE, the underſigned, being ſervants and labourers under Mr. Henry Harper, have aſſiſted in the different operations of ploughing, ſowing, dibbling, and drilling, thraſhing, winnowing, and weighing the different lots, and can aſſert, from our own knowledge, that the account which has been read to us is truly ſtated.

HENRY HIGGINSON, Servant.
WILLIAM BRINDLE, Labourer.

MR. Henry Harper, feeling ſome diffidence in laying before the public the uncommon produce of a crop of Wheat in 1796, wiſhed to know whether the tithe collected from the ſame field could be ſeparated, and whether I would oblige him, by thraſhing a certain part of it ſeparately, and which I fortunately was enabled to perform; and upon trial, found as under, viz.

Marketable Wheat, 4 buſhels, 1 peck, 6 quarts (Wincheſter buſhel), per threave, taken out by the riddle; and ſmall Wheat, about two quarts. Weight, per Wincheſter

cheſter buſhel, 59lb. This was weighed the 26th of January, 1797, and Mr. Harper's in November, 1796, which may account for the difference of weight.

N. B. A few of the ſheaves thraſhed were damaged by the mice.

EDWARD STABLE,
Tithe-Farmer for Kirkdale.

I, THE underſigned, purchaſed 75 buſhels of Mr. Harper's Wheat, of 61½lb. to the buſhel, grown in the field above deſcribed, in 1796, and can certify for its very ſuperior quality, and that the account above ſtated on that head is ſtrictly true.

GEORGE BLUNDELL, Corn Inſpector.

The Amount of Produce and Expence attending the Crop of Wheat.

To rent of field,	-	£.25	0 0
Taxes,	- - -	2	10 0
Repairs in gates, fencing, and ditching,	- -	0	7 6
		£.27	17 6

Three

				£.	s.	d.
Brought forward				27	17	6
Three times ploughing, at 7s. per acre,	£.11	1	0			
Two qrs. of ſeed, at £5. 2s. 8d. per quarter,	10	5	4			
Once harrowing, at 2s. 6d. per acre,	1	7	6			
Sowing ſeed broad-caſt, at 6d. per acre,	0	5	6			
Weeding, at 6d. per acre,	0	5	6			
Reaping, at 8s. per acre,	4	8	0			
Carting home from field, &c.	4	8	0			
Thraſhing 77 qrs. at 2s. 8d. per qr.	10	5	4			
Carting to market, &c.	5	0	0			
Carting ſtraw to market, at 1s. per load,	3	17	0			
Weighing ſtraw, &c.	0	10	0			
				51	13	2
Carting 90 tons of marl, at 1½d. per ton,	0	9	4			
Carting 40 tons of ſoil, at 4d. per ton,	0	13	4			
Two hundred buſhels of lime, at 8d. per buſhel	5	16	8			
Carting to the field,	1	4	0			
Eighty tons of night-ſoil, &c. at 2s. 6d. per ton,	10	0	0			
Carting to the field, at 4s. per 1½ ton,	10	12	0			
Carting out of the ſtreets in the night, to a proper place, to be						

taken

taken away when convenient,					
at 1s. per ton -	£.4	0	0		
Three cwt. of pot-aſh, at 50s. per					
cwt. - -	7	10	0		
Carting ditto to the field -	0	1	0		
Trenching pot-aſh into the compoſt,	0	2	0		
Turning over the compoſt, -	0	6	0		
Carting and ſpreading the compoſt on					
the land, 4d. per ton,	3	13	4		
				44	7 8
Total expence				£.123	18 4
By 77 qrs. of wheat (the ſuppoſed					
average produce, according to					
the quantity already dreſſed),					
at 56s. per quarter,	£.215	12	0		
By 154 threave of ſtraw, at 3s. 6d.					
per threave - - -	26	19	0		
				242	11 0
Clear profit				£.118	12 8

This expence of labour is charged as if all the land had been ſown broad-caſt.

N. B. Now the general average which I ſhould have expected from this field, and with which I ſhould have been well ſatisfied, would have been four quarters per acre, and then the account would have been as follows:

Forty

Forty-four quarters, at 56s. per quarter.	£.123	4	0
The average of the ſtraw expected, would have been one third leſs, - -	17	19	4
Total amount of produce,	£.141	3	4
Expence	£.123	18	4
Clear profit	£.17	5	0

Although the produce of this amazing crop has not yet been clearly aſcertained, but an average drawn from what has actually been dreſſed, yet a fair account, when the whole is thraſhed, will be carefully taken and preſerved, and, if it be found to vary in a conſiderable quantity, ſhall be faithfully laid before the Society to whom this Paper is addreſſed.

The

TWENTY GUINEAS, being the Premium offered for having planted or drilled not leſs than ten Acres of Land with BEANS in the year 1796, and ſown the ſame Land with WHEAT in the ſame year, was this Seſſion adjudged to Mr. JOSEPH WEBSTER, of Bankſide, near Doncaſter, from whom the following Papers were received.

My LORDS and GENTLEMEN,

I TAKE the liberty of tranſmitting to you an account of ſixteen acres of land drilled with Beans in March, 1796, and ſown with Wheat the ſame year.

The ſort of Beans was the common Horſe-bean, drilled by Cooke's Drill: ſix acres were drilled, at twelve inches diſtance, with ten pecks per acre; ten acres were drilled with ſeven pecks per acre; two rows at nine inches, with an interval of twenty-ſeven

inches between every two rows. The above ſixteen acres were drilled the 14th and 15th of March, and reaped from the 29th September to the 6th of October, 1796. The produce of the above ſix acres was forty-eight buſhels and a half per acre; the produce of the ſaid ten acres was fifty-one buſhels and three-quarters per acre. The ſtraw was uſed in the ſtable, cow-houſes, and yard, for litter. The expence of drilling, eight pence per acre; harrowing after the drill, three pence per acre. The ſix acres were ſcarified twice, and horſe-hoed once, at ſixpence each time, *i. e.* one ſhilling and ſixpence per acre the whole. The ten acres were hand-hoed, in particular places, between the rows at nine inches, at one ſhilling per acre, and three times ploughed between the intervals of twenty-ſeven inches wide, at one ſhilling and ſixpence per acre each time, *i. e.* four ſhillings and ſixpence per acre the whole. The ſoil was originally a ſtrong clay, but now greatly improved by a ſediment or mud (commonly

(commonly called warpe) from the river Dun.

I am,

My Lords and Gentlemen,

Your moſt humble ſervant,

JOSEPH WEBSTER.

Bankſide, near *Thorne*, *Doncaſter*,
Yorkſhire, *Oct.* 30, 1797.

I JOHN SANDERSON, of Dikes Marſh, in the pariſh of Thorne, do hereby certify, that Mr. Joſeph Webſter, of Bankſide, in the pariſh of Thorne, and county of York, drilled, in the month of March, 1796, ſixteen acres of land with Beans, and ſowed the ſame with Wheat in the ſame year, viz. 1796; as witneſs my hand, this 30th day of October, 1797,

JOHN SANDERSON.

Dikes Marſh, *Oct.* 30, 1797.

I, JAMES CUTLER, of Thorne, do hereby certify, that Mr. Joſeph Webſter, of Bankſide, in the pariſh of Thorne and county of York, drilled, in the month of March, 1796, ſixteen acres of land with Beans, and ſowed the ſame with Wheat in the ſame year, viz. 1796; as witneſs my hand, this 30th day of October, 1797,

JAS CUTLER.

Thorne, Oct. 30, 1797.

SIR,

I RECEIVED your letter, dated 28th of November, and beg leave to inform you that I ſigned a Certificate, dated the 30th October, 1797, certifying, that Mr. Joſeph Webſter, of Bankſide, in the pariſh of Thorne and county of York, drilled ſixteen acres of land with Beans in the month of March, 1796, and ſowed the ſame with Wheat in the ſame year, viz. 1796; which land Mr. James Cutler, that wrote the other Certificate,

tificate, has meaſured, and there are ſixteen acres and ſeven perches ſtatute meaſure.

I am, SIR,

Your very humble ſervant,

JOHN SANDERSON.

Ditch Marſh, Dec. 16, 1797.

The Premium offered for Comparative Culture of TURNEPS, Claſs 90, being the GOLD MEDAL, or the SILVER MEDAL and TEN GUINEAS, was this Seſſion adjudged to Mr. JOHN EXTER, who made choice of the SILVER MEDAL and TEN GUINEAS, and whoſe Papers on the ſubject are here inſerted.

SIR,

HAVING, for fifteen years paſt, paid great attention to Agriculture in general, and the cultivation of Turneps, as food for ſtock, in particular, I have, in the courſe of that time, made a variety of experiments, with a view to aſcertain the advantages ariſing from different modes of managing them. I take the liberty, therefore, of offering my obſervations on that crop, to your Society's attention. I have, this year, made a comparative trial on a field of ſix acres and a half (the ſucceſs of which is herewith ſent to you),

you), with a view to promote the Society's object; for which they have offered their premium No. 90, which I now take the liberty of becoming a claimant for, and which if I ſhould be conſidered worthy of, in conſequence would afford me a high gratification, which would only be exceeded by the pleaſure of reflecting on having, in any way, aſſiſted in forwarding the views of the Society, and perhaps the agriculture of my country. I have endeavoured to confine my obſervations within as ſmall a compaſs as I could, to be explicit. I am, with the higheſt reſpect for the laudable intentions of the Society,

SIR,

Your humble Servant,

I. E. P. B. D.

My correſponding paper, as ordered by the Society, deſcribing my addreſs, &c. &c. containing the certificate of the experiment I produce, is marked with the letters I. E. P. B. D.

A ſix-acre field of light ſandy loam, from four to five inches deep, on a clayey ſubſtratum, which had been previouſly exhauſted by white ſtraw crops, and which I rent at 30s. per acre, though I conſider it too dear in the price (the ſoil of which differs but very little in any part of the field), was ploughed from a barley ſtubble, in December, 1796, and was croſs-ploughed the laſt week of May, ſcuffled acroſs in June, four acres of which were manured with dung, and the remainder by the ſheepfold. The part dunged had 120 horſe-loads of rotten ſtall dung, 250 cwt. each, per acre; the part folded had at the rate of 1200 ſheep per night, per acre. The whole field was ploughed again as ſoon as the manuring was completed, and on the 15th of July was ſown acroſs the different manurings, as follows: half the field broadcaſt, one pound of ſeed per acre; one acre of the remainder, drilled with Cooke's drill machine, with about half a pound of ſeed per acre, at eighteen inches diſtant from row to row; and the remainder with the

ſame

ſame machine, three quarters of a pound per acre, in rows, at a foot aſunder. The weather being favourable, with frequent ſhowers, the whole field planted ſufficiently well for a crop; but the different parts varied much in their progreſs in getting into the rough leaf, and conſequently eſcaping the danger of the fly. The drilled, at a foot apart, ſeemed to loſe the ſmalleſt number of plants; the drilled at eighteen inches, the next; and the broad-caſt, the largeſt number; and conſequently was, in many places, patchy, with intervals of four or five feet without any plants at all. There was alſo a degree of vigour obſervable on the part manured with dung, much ſuperior to that manured by the ſheepfold; the former got into the rough leaf many days ſooner, and ſaved a much larger number of plants. The whole crop was hand-hoed once; the broad-caſt coſt 8s. 2d. the drilled part 5s. 10d. per acre.—A large quantity of ſeed weeds, which had been carried out with the dung, had ſhown themſelves previous to the hoeing, and many

many ſprung up again after, and were more particularly apparent in the broad-caſt part of the field, and in the intervals where that crop had failed: the drilled part had not nearly as many weeds, from the turneps growing faſter, and keeping them under, or perhaps their being more effectually cut up by the hoe, in the intervals between the rows. The part of the field manured with dung was all ſuperior in its growth to the part folded on, throughout the autumn, and is at this time as three to two better. The ſuperior advantage of drilling to broad-caſt is more particularly apparent in the part of the field manured with the fold; and the twelve-inch intervals are alſo in this part more ſuperior to the eighteen-inch intervals, than on the part manured with dung.

February 27, 1798, four ſquare perches of each of the different modes of ſowing, were meaſured off by the Miniſter of the Pariſh, and the Overſeer of the Poor, who is a farmer, and rents £.400 per annum in the ſaid pariſh, in preſence of ſeveral other

other perſons; and the turneps drawn from each portion were ſeparately weighed, their tops and tails having been previouſly cut off; and the produce of clean roots was as follows:

The four perches drilled at a foot,	962
The four perches drilled at 18 inches,	888
The four perches broad-caſt,	555

I think it right here to remark, that the four perches of the broad-caſt fixed on were more fully ſtocked with good plants than the general average of the broad-caſt part, theſe four perches having ſcarcely a failing ſpot. The broad-caſt part in general being ſomewhat patchy, and the drilled pretty uniformly filled with plants, over all the field; I am certain, had the whole of each portion been weighed, the drilled would have exceeded the broad-caſt more than two to one. The bulbs of the drilled turneps were rounder, and more nearly of a ſize, than the broad-caſt, which I think muſt be owing to the more equal diſtances

their

their roots had to feed in; and perhaps to this circumſtance, more than any other, it owes its extra produce.

The following remarks on the cultivation of Turneps have been made by myſelf, in ſucceſſion of practice for fifteen or ſixteen years; and I therefore take the liberty of adding them, as I can declare them founded on obſervation.

Soils for Turneps.

Sandy loams, in good heart, are moſt favourable to their growth, though they will thrive well on ſtrong loams, if they are not wet: but on clayey, thin, or wet ſoils, they are not worth tilling; the crop is always poor, and the land injured by them.

Preparation of the Soil for them.

Plough three or four times; the firſt time before Chirſtmas, and harrow or dig the land as often as it is weedy; and always previous to the ploughings, manure ſhould be laid on immediately before the laſt plough-

ing.

ing. If the land is dry, plough it quite flat; if the ſoil is diſpoſed to be wet or ſpringy, gather it into beds or ridges, ſufficiently high to keep it dry; or gather it, after manuring, into four furrow ridges, and drill on the top of each ridge; and plough the intervals twice during the growth of the crop, firſt ploughing off from the ſides of the ridges, and next back again, up to them. Hand-hoe the tops of the ridges.

Paring and burning the turf, at firſt breaking up old ſwards, is the beſt preparation in many ſituations. After paring and burning, plough twice, the firſt time very thin; then ſpread the manure, and turn it in with a full-depth furrow, on which ſow immediately, and harrow once to cover the ſeed.

Manuring.

Land cannot be too rich for Turneps, eſpecially if the crop is to be carted off from the land. The beſt manures I have experienced are as follow: I place the beſt firſt, the others

others in ſucceſſion, according to my opinion of their merits; 1. dung, 2. ſoap-aſhes, 3. ſheepfold, 4. lime; the laſt the leaſt to be depended on. I think it is of very little uſe in ſecuring the young plant from the fly, but it promotes the after-growth of the crop. I think all the noſtrums offered as preſervatives againſt the fly are mere quackery. Good manuring, with freſh dung, juſt rotten enough to plough under, is the beſt; ſpread your dung juſt freſh before the plough, and as ſoon as poſſible after the laſt ploughing.

Seed and Seed proceſs, &c.

The tankard turnep the beſt for early ſeed, the white round ſtock for the middle ſeaſon, the green top for late ſpring ſeed. Sow new ſeed in preference to old: if broad-caſt, one pound and a half per acre; and harrow once at a place to cover it. I have often mixed my ſeed in damp ſaw-duſt, for the ſake of increaſing its bulk, and diſtributing it more regularly, allowing half a buſhel

buſhel of ſaw-duſt to the quantity of ſeed per acre ſown broad-caſt. If you drill, half the ſeed is ſufficient, and depoſit it from one inch and a half to two inches deep; if the ſoil is damp at the time, the better. The placing Turnep-ſeed deep in the ſoil accelerates the growth of the plant, by giving it moiſture, and gets it ſooner out of the power of the fly. The beſt diſtance for the rows appears to be at one foot apart, except for the tankard turnep, in very rich ſoils, to be eaten off early, where perhaps eighteen inches may be equally advantageous. I have ſeveral times drilled my turneps in very foul land, two rows at a foot aſunder, with an interval of two feet, the narrow interval hand-hoed, and the wide interval twice ploughed with the common plough; and this far exceeded the broad-caſt in the ſame field, both in fallow and crop.—Never harrow fine, or roll the land after ſowing the ſeed: the more ſmall clods are left on the ſurface the better, provided they do not exceed the

ſize

ſize of a turkey's egg. Horſe-hoe the drilled, and hand-hoe the broad-caſt crops, and both at an early period, viz. as ſoon as the plants expand their leaves as wide as a crown-piece. By early hoeing the weeds are checked, and the crop forwarded in growth. The operation may be repeated if weeds come on again. In general, a ſecond hoeing is neceſſary.—From repeated trials, I am ſatisfied that drilling Turneps is preferable to ſowing them broad-caſt on every ſoil where the land is not ſo declivous as to prevent ſowing with a drill, and even on lands too ſtony to admit the horſe-hoe: it diſtributes the ſeeds more regularly, and depoſits it to any depth required, by which it is often ſecured from the fly, by being accelerated in its growth; and, in ſoils that will admit the horſe-hoe, it leſſens the expence of hoeing more than one half: and, beſides producing a better Turnep-crop, it prepares the land better for the crop of corn that follows it than any hand-hoeing whatever. Beſides, Turneps always come to hoeing

hoeing in the buſy time of harveſt; and when you cannot ſpare men to hand-hoe at all, a man, boy, and horſe, will horſe-hoe five or ſix acres per day.*

Application of the Crop.

I have uſually given my Turneps to different ſtock, viz. ſheep and bullocks, as ſuited me beſt at the time: but I think the beſt application of them is to fat ſheep, who are to eat off the freſh-ſtocked part; and their leavings may be eaten by lean ſheep that follow them, or yearling cattle, if the land is dry enough to bear them. If the land is damp and poachy, they ſhould be carted off for cattle to a dry piece of land, or a yard adjoining. The beaſts ſhould have hay or ſtraw, as much as they will eat with them. Some years ſince I made an experiment to aſcertain what would be

* The experiments referred to, and the horſe-hoeing, have all been executed with Mr. Cook's Machine, which I conſider the moſt complete Drill Machine and Horſe-Hoe that I have had an opportunity of working with.

the difference of giving cattle hay or ſtraw to eat with them. I took twelve beaſts, in the ſame ſtate of fatneſs, and which had been kept the preceding ſummer together, and tied them up in different yards; ſix had hay with the turneps, and ſix had ſtraw. The cattle fed with hay were finiſhed and ſold in May, the others in June. I have not repeated the experiment, as I was ſatiſfied from this that it would not pay to feed turnep ſtock on hay, if they are to go to graſs after. I find Turneps of great uſe in rearing calves. I always give them as much hay as they will eat with them, and never permit them to drink, or give them any milk after I get them to eat Turneps, which they generally take to at about ten weeks old.

I bring them to eat Turneps, by keeping them twenty-four or thirty hours without any milk or water, and then cut the Turneps into thin ſlices, and put ſome of them into their mouths; this ſoon brings them to pick them up from their mangers.

WE,

WE, whoſe names are hereunto ſubſcribed, the miniſter and overſeer of the poor of the pariſh of Pilton, in the county of Devon, do hereby teſtify, that on the 27th day of February, 1798, we viewed a crop of Turneps, of ſix acres and a half, cultivated by Mr. John Exter, in the ſaid pariſh, the one half of which crop was ſown broad-caſt in the common mode of the country, and the other half drilled in two different methods, viz. one acre in drills with intervals of eighteen inches, and the remaining two acres and a half in drills at one foot apart; and that we meaſured off four ſquare perches of each, and drew up and weighed the produce of clean Turneps, their tops and tails being previouſly cut and cleaned off, and that we found the produce of each part as follows:—

	lb.
The four perches drilled at a foot -	962
The four perches drilled at 18 inches	888
The four perches broad-caſt - -	555

And we think that the fallow on the part drilled was much finer, cleaner, and in better condition for the ſucceeding ſpring crop than the broad-caſt part; and that the perſon who managed and hand-hoed the ſaid crop was preſent at the ſame time, and aſſured us that the manuring and cultivation of the ſaid ſoil differed in nothing but the mode of ſowing; that he hoed an acre of the drilled crop in five days with more eaſe than he could hoe the acre broad-caſt in ſeven; and that we were, from this experiment, induced to believe that the method of drilling Turneps adopted by Mr. Exter is far ſuperior to broad-caſt ſowing.

Witneſs our hands,

WM. SPURWAY, Miniſter of Pilton,
ROBT. CAWSEY, Overſeer of the Poor.

The

The Thanks of the Society were this Seſſion given to Mr. HENRY HARPER, of Bank-Hall, in Kirkdale, Lancaſhire, for the following Communication relative to the Culture of POTATOES, and the application of that Root to the feeding various kinds of Stock.

Potatoe Culture on my Farm, which is nearly the ſame through both Lancaſhire and Cheſhire.

OF the early ſort there are a great many kinds, and are planted in various ways. The beſt early kind are the Broton's Dwarfs, for they have never yet been known to curl; and they are always good, though there are many ſorts that may, by chance, over-crop them for a ſeaſon or two, and then run off to curl. The next early ſort I prefer, are the Dwarf Manleys, which come in about two weeks later, have never been known to curl, and are always good; and, if the

land be made rich, they will crop nearly equal to any winter ſort. The next that comes in to theſe are the Champion, which always crop well, but are not much eſteemed here; for they have a ſtronger coarſe taſte than any of the other ſorts. (For the management of theſe, in their culture, ſee the Lancaſhire Report.)

The general Crop for Winter-ſtore.

The beſt time for planting, is from the firſt of May to the twelfth, to have real good Potatoes; but there are often great crops obtained, which are planted from the twelfth to the thirty-firſt. There are a great many ſorts of theſe; but for houſe uſe I prefer planting a few of the Scotch White: for the general planting, I prefer the Pink-eye; and, for fear of the curl, I every year change my ſeed, and get of thoſe that have been planted on the moſſes. Theſe put out large branches, which keep the land clean; and if they keep clear of the curl, they always crop well, and will keep in

in great perfection for houſe uſe. Then, after Midſummer, the Apple Potatoe will keep the longeſt in perfection; but I ſeldom get above half a crop of them, and they are troubleſome to boil; for it is very rare that you can get them thoroughly boiled to the heart.

For Cattle, &c.

I prefer planting the Ox-Noble and the Cluſter Potatoe (to be planted any time from the firſt of May to the thirty-firſt); for theſe will crop well on almoſt any kind of land, if ever ſo much exhauſted, and with little manure; and they put out large branches, which keeps the land clean. Of theſe ſorts I get three buſhels, where I only get two of the others, and am always more certain of a crop; but their value nearly reduces them to the ſame as the others, for they are moſtly near one-fourth leſs in value per buſhel.

From the Scotch and Pink-eyes, if on old ploughed arable land, I get two

hundred and forty buſhels, the ſtatute acre, of ninety pounds each; from the Ox-Noble, or Cluſter Potatoe, I get three hundred and twenty buſhels, of ninety pounds each.

Now, to aſcertain the value of the land, and of manure, entirely depends on the diſtrict; but I ſay, on my farm:—

Two hundred and forty buſhels of Potatoes, at 1s. 4d. per buſhel				£.16	0 0
Rent of land, taxes, &c. per acre	£.2	5	0		
Twice ploughing, 8s. per acre	0	16	0		
Once harrowing, ditto, -	0	4	0		
Drilling, ditto, . - - -	0	4	0		
Manure, 18 tons, at 6s. per ton	5	8	0		
Carting manure on the land, at 10d. per ton - - -	0	15	0		
Spreading in the drills - -	0	1	6		
Sets, 20 buſhels, at 1s. 4d. per buſhel - - - -	1	6	8		
Cutting ditto, - - -	0	2	6		
Covering ſets with the plough -	0	4	0		
Covering them a few days before coming up - - -	0	4	0		
Ploughing the drills down -	0	4	0		
Hand weeding - - -	0	2	0		
Getting up, 3d. per rod -	2	0	0		
				14	3 2
Profit clear, per acre, by Scotch and Pink-eyes				£.1	16 10

The

				£.	s.	d.
Three hundred and twenty buſhels of Oxnoble or Cluſter Potatoes, at 1s. per buſhel,				16	0	0
Rent of land, taxes, &c. per acre,	£.2	5	0			
Twice ploughing, at 8s. per acre,	0	16	0			
Once harrowing, - -	0	4	0			
Drilling, - -	0	4	0			
Manure, 12 tons, at 6s. per ton	3	12	0			
Carting manure on the land, at 10d. per ton, - -	0	10	0			
Spreading in the drills, -	0	1	6			
Sets, 20 buſhels, at 1s. per buſhel,	1	0	0			
Cutting ditto, - -	0	2	6			
Laying in the drills - -	0	2	6			
Covering ſets with the plough	0	4	0			
Covering them a few days before coming up - -	0	4	0			
Ploughing down, - -	0	4	0			
Ditto up, - - -	0	4	0			
Hand-weeding, - -	0	2	0			
Getting Potatoes up, 3d. per rod,	2	0	0			
				11	15	6
Profit clear, per acre, by the Oxnoble and Cluſter Potatoe,				£.4	4	6

If I plant on freſh land, ploughed up from a ſward of graſs, and a crop of oats taken the year before, the produce of the Pink-eye, &c. will moſtly be three hundred and twenty buſhels

buſhels per acre; the Oxnoble, &c. four hundred and eighty buſhels per acre, and with one-fourth leſs manure. All the other out-goings the ſame as the others.

	£.	s.	d.
Three hundred and twenty buſhels of Pink-eye, &c. at 1s. 4d. per buſhel, - -	21	6	8
Out-goings on ditto per acre, - -	13	5	2
Profit clear, per acre, on do. on this kind of land,	£.8	1	6
Four hundred and eighty buſhels of Oxnoble, &c. at 1s. per buſhel, - - -	24	0	0
Out-goings on ditto, per acre, -	13	5	2
Profit clear, per acre, on ditto, on this kind of land, - - - -	£.10	14	10

If they are got for a market, the expence runs high upon them, they are ſo heavy an article, and particularly when they are conveyed ten, fifteen, or twenty miles; but, when carried ſuch diſtances, the land, &c. is generally cheaper, and they often crop as well with leſs manure.

The

The drills I make are, if on old ploughed arable land, one yard; if on freſh land, thirty inches; which is for the moſt part the general practice with others. What is meant by covering them a few days before they ſhoot up, is this: there is a ſmall rib of earth left in the centre of the drill, at the time the ſets are covered with the plough when they are planted, which is divided each way with a double mould-board-plough, or a common plough. This practice is to keep the weeds down, and make the plants ſhoot out ſtronger. The ploughing them down, is when they are grown eight or twelve inches high. This is a ſmall furrow, ploughed down each way from the plants, but not ſo as to injure them, which deſtroys all the weeds but thoſe that may grow amongſt the plants, which are then pulled out by hand. In this ploughing down, they only lie three or four days, ſo as to deſtroy the weeds, if any, and then the earth is ploughed up each way again to the plants, and thrown amongſt them as much

much as poſſible, but not ſo as to injure them. When this is performed, they are finiſhed till the time of taking them up out of the land.

It is rather difficult to fix any average for the crop; for if a ſufficient rain does not fall ſoon after they have come to the ſhape of potatoes, the crop may be cut off to one half, or third, or fourth part. If they get tolerably well ſatisfied with wet at this time, they do not require much after.

Some may ſay I ſet them too thick. My mode is, for Pink-eyes, &c. ſix or ſeven inches; for the Oxnoble, &c. ſeven or eight inches diſtance from plant to plant, or ſay, from ſet to ſet. The average I obtain from this mode, is from fifteen to twenty, and ſome chance times, thirty buſhels, for one buſhel ſetting. For I find by experience, that by too thin planting I am ſubject to more miſproving crops; and when thin ſet, if they crop well, they will grow ſo large, that they will be hollow in the middle, and then they

run to water, and loſe both in their weight and quality.

Bank-Hall, Kirkdale, May 3, 1797.

The value and uſe of Potatoes on my farm, for feeding ſtock, milking-cattle, &c. will both pay and ſave at 1s. the buſhel, of ninety pounds, when the prices of corn are as follows, viz. Wheat, from 7s. to 8s. the buſhel, of ſeventy pounds; Barley, from 4s. to 4s. 6d. the buſhel, of ſixty pounds; and Oats, from 2s. 4d. to 2s. 10d. the buſhel, of forty-five pounds. Potatoes, either for feeding ſtock, or milking, fifteen pounds, given raw, with one pound and a half of corn, either ground or boiled, is equal to ſix pounds of corn.

			£.	s.	d.
I ſay, keep for one week, two feeds per day, is					
84lbs. of corn, at 4s. per buſhel, of 60lbs.			0	5	7
Two buſhels and 30lbs. of potatoes,	s.	d.			
for one week, at 1s. per buſhel,	2	4			
Twenty-one pounds of corn, at 4s. per					
buſhel, of 60lbs. - -	1	4½			
			0	3	8½
Balance in favour of Potatoes and Corn for one					
week, - - - - -			0	1	10½

Feeding Pigs, either for Fat or for Pork, with Potatoes and Flour.

Eight pounds of Potatoes and one pound of Flour are equal to four pounds of either meal or flour; but as in feeding of pigs there is ſuch an uncertainty in their eating, I ſay, one buſhel of Potatoes, and eleven pounds of Flour, are equal to forty-four pounds of Flour, at four ſhillings per buſhel, of 60lb. weight, - - - *s. d.* £.0 3 0½

One buſhel of Potatoes, -	1 0	
Eleven pounds of Flour, at 4s. per buſhel, of 60lb. - -	0 9	
To ſteaming or boiling the Potatoes	0 3	
		0 2 0

Balance in favour of Potatoes and Flour, &c. in feeding pigs, by one buſhel of Potatoes, and eleven pounds of Flour, - £.0 1 0½

N. B. When I feed either beaſts or pigs with Flour and Potatoes, after ſome time at the firſt, when they have been well fed, they will abate in their eating; and when this is perceived, I then take all the hull or bran out of the flour, as it is then of no uſe either to beaſt or pig; but if kept in, will prolong their time of feeding and making up to fat in the inſide: for when it is taken out,

out, they will both make up better, and in nearly one half of the time that they would if the hull or bran of the corn was not taken out; and when taken out, it is uſeful for many other good purpoſes, ſuch as feeding ſtock almoſt of any kind, keeping dogs, &c. Eight ounces of Potatoes, and one ounce of meal, are equal to four ounces of meal. I ſay, the keep of a dog for one week:

To 5lb. 4 oz. of Meal, at 2d. per lb. -			£.0 0 10½
To 10lb. 8 oz. of Potatoes, at 1s. per buſhel, of 90lb. -	0 0 1½		
To boiling, &c. - -	0 0 2		
To 1lb. 5 oz. of Meal, at 2d. per lb. - - - -	0 0 2½		
			0 0 6
Balance in favour of Potatoes and Meal for the keep of a dog one week, - -			£.0 0 4½

There is more profit in feeding geeſe, turkeys, and fowls of every ſort, with Potatoes and meal, mixed, as for dogs, than there is by the keep of dogs: they will feed fatter, and in nearly one half of the time that they will with any kind of corn, or even meal

meal by itſelf. Potatoes that are either broiled or ſteamed, as ſoon as they are done muſt be bruiſed ſmall while they are hot; for if they are ſuffered to grow cold, they will not bruiſe ſo ſmall; and the finer they are made, the better they are; and they muſt either be ſteamed or boiled freſh every day; and the quantity of flour or meal that is to be put to the Potatoes muſt not be put to them till they are going to be given for feed.

Potatoes, either boiled or ſteamed, or given raw, according to the mixture given with them, pay equally as well for cart or plough horſes, as they do for cattle, &c. and are of the ſame value for that uſe on my farm.

The aforeſaid experiments are what I have practiſed on my farm, therefore I can aſſert the report here ſtated to be true: it is from real practice, and not from imaginary theory.

Any gentleman or farmer, &c. that may think theſe remarks worthy of notice, muſt take

take care that the mixtures are all regularly executed; for if they are not, property will be waſted, and the ſtock, let it be of whatever kind it may, will be going backward, and the time prolonged, and attended with three times the expence, and you become diſappointed; and then all is condemned, which is often through the neglect of ſervants, &c. and particularly when it is attended with a little more trouble.

Stock, whether for feeding or milking, never do all years alike with me, although their keep be the ſame, both of graſs and houſe-feeding: therefore, if I try any freſh experiment, I never condemn it for miſproving one year; for, if I think there is any proſpect, I try it again, if on ever ſo ſmall a ſcale; for every thing ſhould have a fair chance, before it is laid aſide.

I do not confine myſelf to the Potatoe culture for the uſe of ſtock alone; I grow Turneps in great perfection, which I moſtly draw off the land; and I find, that both

together, they anſwer better than all of either Turneps or Potatoes; but Potatoes I can keep for the uſe of green crop all the ſpring, and even to Midſummer if I had occaſion for them.

Some people are of opinion that Potatoes exhauſt the land more than Turneps, but my ideas differ; for if the potatoe land was to be laid dry, and lie ſo for the winter after the crop is taken off the land, it would be equal to turnep land, for any ſpring crop that the land would bear; but is moſtly ſown with wheat, let the ſeaſon turn out ever ſo bad, and, by being ſown in bad condition, it moſtly leaves the land foul. If it happens to be a bad ſowing ſeaſon with me, I never ſow my potatoe land with wheat, but leave it dry, and let it lie for the winter, and it is always in excellent order for any early ſpring crop, ſuch as the land will bear.

My remarks on my former Papers anſwer my expectation in every reſpect: that on ſalting hay, turns out to great advantage; that

that on ſtraw, for manure, will pay any gentleman or farmer to purchaſe ſtraw for his farm, at 2½d. the ſtone of twenty pounds, to make into manure on his farm, better than carrying it to market, either for mixing compoſts, or mixing with other manure, particularly where you have reſervoir water. That on the compoſt which was ſet on the graſs land, now is as forward, and appears to be as promiſing for a crop of hay-graſs, as where the real manure was ſet.

I remain,

My Lords and Gentlemen of the
Honourable Society,

Your obedient humble ſervant,

HENRY HARPER.

N. B. I have dibbled Wheat this laſt ſowing ſeaſon, but on a ſmaller ſcale; and I have ſet ſome that is tranſplanted; but it appears to me that the expence attending it will over-balance any ſaving of ſeed, &c.

Drilling and hoeing, on thin light ſoils, will, in my opinion, anſwer better by one third more in the crop than the broad-caſt. I have drilled nearly one half of my Wheat, now growing on both ſtrong heavy ſoils, and light, thin, ſandy ſoils, &c.

The

The GOLD MEDAL, or THIRTY GUINEAS, at the option of the Candidate, being the Premium offered for cultivating the True RHUBARB, was this Seſſion adjudged to Mr. THOMAS JONES, of Fiſh-ſtreet-hill, from whom the following Papers were received.

Mr. JONES made choice of the pecuniary Reward.

SIR,

IF ever the cultivation of Rhubarb in this kingdom becomes ſo extenſive as to ſuperſede the neceſſity of its importation; to the Society for the promotion of Arts, Manufactures, and Commerce, will the community be indebted for an advantage, the magnitude and importance of which cannot be too highly appreciated. From whatever cauſe, which it is unneceſſary here to inveſtigate, certain it is the conſumption of this valuable

drug is increaſed, and continues to do ſo to a very great degree. All calculation, from a variety of circumſtances, muſt be vague; but I do not think Sir William Fordyce, in ſpeaking of the value of the importation, is much miſtaken, when he eſtimates the annual amount at £.200,000 ſterling. Whether this ſtatement is true to the extent or not, how forcibly it muſt ſtrike to the conviction of every one, and how much to be lamented, that a country like England, whoſe commercial conſequence is ſolely dependent on the induſtry of its inhabitants, and the productions of its ſoil, ſhould be indebted to other climates, and other ſoils, for that which, I am more than ever perſuaded, is congenial to its own!

The Society, feeling all the force of this obſervation, have endeavoured, for a conſiderable period, to promote a remedy; and every attentive obſerver cannot fail being impreſſed with the wiſdom and prudence that have governed their conduct.

Till the fact was rendered ſo indiſputable

as

as to defy all controverſy, inſtead of ſtimulating the ſpeculative to undertakings, moſt certainly very expenſive, and after all of doubtful benefit, they firſt confined themſelves within ſuch a limit, as that the requiſition apppeared more like an experiment than any thing elſe. In time, certain claimants, preferring their different pretenſions, eſtabliſhed by actual experiment the practicability of the meaſure; and hence, with a perſeverance and liberality that will ever redound to their honour, they now ſtipulate for more extenſive performances, and, beſides their honorary GOLD MEDAL, offer this year a handſome pecuniary reward, at the option of the claimant.

It would ſeem too much like affectation, were I, on the preſent occaſion, to diſclaim every idea of pride; I freely confeſs the repeated favours of ſuch an Inſtitution, and that perhaps I may have been, in ſome meaſure, inſtrumental in forwarding its patriotic deſigns, are conſiderations calculated to influence a mind leſs ſuſceptible of vanity

than I apprehend mine to be. Yes, Sir, in ſending you the encloſed certificate I cannot reſtrain my feelings: I do experience a conſiderable degree of pride as well as pleaſure, being conſcious of having fulfilled my pledge to the Society, and entertaining the flattering hope of being again honoured with its approbation.

I have heard it aſked, that as the advantages have been repreſented as ſo apparent, whence is it that the cultivators of Rhubarb are not more numerous, and how it happens that an object of ſuch obvious benefit ſhould ſtand in need of any farther encouragement?

Theſe queſtions will require no anſwer, when it is recollected that, however inviting the advantages may be, their diſtance alone is enough to operate as an almoſt inſurmountable obſtacle to a general cultivation; but the more ſo, when it is further conſidered, that after all they are not quite ſo certain as the projector may flatter himſelf.

To

To influence therefore the generality, and particularly thoſe claſſes (who muſt be engaged in this undertaking to produce all the effect we deſire, more eſpecially as in the preſent caſe, where the return cannot be either prompt or ſpeedy) to deviate from their ordinary habits and purſuits, ſuch a ſyſtem of rewards muſt be adopted as to ſuit the general diſpoſition. It was, I dare ſay, this conſideration that induced the varied meaſure of the Society already alluded to. They ſeem to have taken up the matter with the earneſtneſs it deſerves; and under their countenance I will venture to predict the beſt conſequences. As the ſubject continues to be inveſtigated, the difficulties will neceſſarily ſubſide; and the profits being rendered more ſecure, the undertaking will become ſufficiently lucrative not to require any additional incitement.

The prevailing prejudice for foreign commodities, ſeems to me to be of infinitely more conſequence than any obſtacle that can impede its general cultivation; but

even

even this, ſtrong and powerful as it is, ſelf-intereſt will overcome; and if the cultivator is circumſpect, and as much as poſſible endeavours to give Britiſh Rhubarb the appearance of the foreign, and at the ſame time moderates his pecuniary expectations, there can be little danger of its riſing in the public eſtimation. I purpoſely omit noticing here its medicinal qualities, as, from the general teſtimony, they are not likely to be queſtioned; all accounts agreeing that Rhubarb, ſo cultivated as to arrive at ſix or ſeven years growth, and properly cured, will poſſeſs all the virtues the moſt ſanguine can deſire.*

In

* In corroboration of this ſtatement, and under the conviction how much gratification it will afford the Society, inaſmuch as it is a proof that in their endeavours to promote the public advantage they will receive co-operation from other reſpectable inſtitutions, I am induced to mention a circumſtance that has occurred within theſe few days.—At the inſtigation of Alexander Champion, Eſq. one of the Governors, I ſent ſeveral pounds of Britiſh Rhubarb to Guy's Hoſpital, for their examination and trial. I have ſince had the honour of an interview with the phyſicians of that hoſpital, upon the

In this place it will be proper to notice what I cannot help conſidering as very material: it is, that, without a perſevering attention throughout, the ſkill of the curer will be exerted to very little purpoſe; as I conceive all the difficulties to ariſe principally, if not entirely, from want of care and circumſpection in the cultivator. In other words, at a proper age it will have acquired a certain degree of woodineſs and ſolidity, that will be found greatly to facilitate this laſt operation: indeed, I begin to ſuſpect this to be the whole of the ſecret. Unfortunately, ſuch is the natural ſucculency of this plant, and its liableneſs to decay, as to require an unremitting aſſiduity to prevent the one, in

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ſubject, and embraced that opportunity for preſenting them other and improved ſpecimens. I cannot deſcribe the pleaſure I experience, while I add, that they were unanimous in their expreſſions of approbation and reſpect, and were pleaſed to give me an order for as much as, from the ſtate of my plantation, I was enabled to execute, as an encouragement for what they politely entitled my meritorious perſeverance and exertions.

in its progreſs towards the other. But as, in my former letters, I laid peculiar ſtreſs upon this point whenever it came under conſideration, and having noticed it hereafter, it becomes unneceſſary here to ſay more, than that perſons will find themſelves miſerably deceived, if, when the plantation is completed, they imagine nothing more to be done than to wait the harveſt. In the ſame letters, my method of culture being ſo minutely deſcribed (a method that poſſeſſes no other recommendation than ſimplicity), I ſhall paſs it over for the ſame reaſon; and, in the further proſecution of this ſubject, avoiding repetition as much as is conſiſtent with plainneſs, ſhall content myſelf with laying before the Society a few general hints, which, being the reſult of actual obſervation, may perhaps prove uſeful to future cultivators.

Firſt.—In the choice of a ſituation, I do not think the aſpect very material, provided it is not ſhaded too much on the ſouth or weſt; but it muſt be obvious, the ſmaller

number of ſurrounding trees the better, as the roots of the one may naturally be expected to interfere with thoſe of the other. The indiſpenſable points are the depth and good quality of the ſoil; and if, with theſe advantages, the plantation can be placed in a gentle declivity, ſuch a ſituation may be ſaid to be very eligible.

Secondly.—If the ground to be converted to this purpoſe is a greenſward, no time will be really loſt by a little delay. Suffer a ſeaſon or two to elapſe before the plantation is attempted, that the turf may be entirely decayed, the ſoil in general more ameliorated, and, what is of more conſequence than theſe, the wire-worms, which always infeſt old graſs land, more completely deſtroyed. Many thouſand plants I had the misfortune to loſe from the depredations of this inſect only; and it will be found, that even rats, mice, and moles, are not ſo much to be dreaded as theſe pernicious creatures.

Thirdly.—I would recommend every one, if they can, to ſow liberally (I do not mean a large

a large quantity of ſeed upon a ſmall piece of ground, but the contrary); and as it is impoſſible to foretell what devaſtation may happen, from an unuſually wet or ſevere winter, or any other cauſe, never let a ſeaſon be omitted, leſt a ſupply ſhould fail, and a ſucceſſion be loſt.

Provided the weather is open, the beſt period is the latter end of February, or the beginning of March, for this purpoſe; and if the ſeed ſhould not vegetate in three weeks, let the ſowings be repeated till they do. In cold ſoils a moderate hot-bed will be ſometimes required, but very ſeldom, and ought never to be uſed but when abſolutely neceſſary; for thoſe plants will be found the ſtrongeſt that are raiſed in the open ground. I prefer ſowing in the broad-caſt method, rather than in drills.

Fourthly.—The nurſery-bed to which the plants are to be transferred when at their proper ſize, and which comes next to be mentioned, muſt be diligently attended to. If any one ſhould ever conſult this Paper with

with the hope of information, let me aſſure the enquirer that more depends upon this circumſtance than at firſt may be imagined; for, ſtrange as it may ſeem, it is no leſs ſo than true, the future ſucceſs of a plant may be dated from its improvement in the nurſery-bed: hence the pains we beſtow upon them by conſtant waterings (for now they can ſcarcely have too much, if the weather is warm), and protecting them from the ravages of ſlugs and other inſects, in their preſent ſtage, will be amply repaid us. I have known roots that have thriven well now, arrive in three years to an equal ſize with others that have not ſucceeded ſo well at the end of five. On this account, taking it for granted that the preceding hint reſpecting the dimenſions of the ſeed-bed will be attended to, and as a great many will occupy but a ſmall ſpace, being no more than ſix or eight inches apart, I recommend every one likewiſe to plant as freely as they can; and, whenever a plantation is to be formed, or a vacancy filled up, to be ſure that the

fineſt and moſt thrifty plants are ſelected. I never recollect a ſingle inſtance of a plant ſucceeding, when it had loſt its principal bud.

Fifthly.—Where a plantation does not poſſeſs the natural advantage of being on a declivity, narrower beds, and deepened trenches, are among the artificial means that ſhould be adopted; but all ſituations will require a greater or leſs proportion of care, to prevent the ill effects of water remaining on the crowns of the plants; therefore, when the ſeed-ſtalks are cut off, which ought always to be done immediately upon the withering of the radical leaves, they ſhould be covered with mould, in the form of an hillock. This proceſs will anſwer two good purpoſes, that of throwing off the rains, and the trenches, by ſupplying the material, will always be kept well open.

Sixthly.—To obtain good merchantable Rhubarb, at every opportunity I have ſpared no pains to enforce the abſolute neceſſity of age, to diſcover the cauſe of its ſo frequent failure,

failure, in its progreſs towards it, and to point out the means of prevention. That the former is an eſſential will appear the more clearly, when I add, that till the plants have blown, their medical virtues ſcarcely come into exiſtence; and the latter will appear equally eſſential, when I further add, that at the ſame period the danger of decay commences likewiſe. Whoever attentively examines the growth of theſe roots, will perceive that their buds poſſeſs the double capacity, of ſerving firſt as their natural defence, and afterwards even aſſiſting in their deſtruction. When one or more of theſe buds have bloomed, a cavity is formed in the centre of the plant, ſurrounded by the reſt, into which the rain, if permitted, will make a lodgment, to the inevitable deſtruction of thoſe parts that, on this account, year after year, become unprotected.

Thoſe portions of the crown whence the ſeed-ſtalks ariſe, prove ever the moſt valuable; and every ſucceeding year pro-

ducing other ſeed-ſtalks, would add to the ſtock of uſeful root, if experience did not tell us, that hitherto the latter have increaſed no faſter than the former have been diminiſhed. Thus I have ſeen much ſurpriſe expreſſed in letters tranſmitted to the Society upon this ſubject, that upon taking up roots of ſeven or more years old the greateſt quantity ſhould be good for nothing; and as the cauſe has never been reflected on, the only remedy the authors have ventured to recommend, is a more early removal, not being aware that this meaſure is at once deſtructive of all the beneficial conſequences of age.

Laſtly—Notwithſtanding our utmoſt care, it muſt not be expected that ſucceſs will attend us in every inſtance; for this reaſon, every ſpring and autumn the plants ſhould undergo a general examination. The young ones will preſently diſcover their real ſituation, for either their leaves will wither as faſt as they are produced, or their growth will become ſtunted: but with regard to

the older ones, or thoſe that have blown, as in moſt caſes there will be found enough ſound root to produce a very luxuriant foliage, their ſtate can only be diſcovered by preſſing a finger into the centre of the crown; the leaſt unſoundneſs will ſoon be perceptible by this means.

In both theſe caſes I recommend the removal of the plants, and the vacancies occupied with others; for in the former much time will be ſaved, and the bad ſituation of the latter, by remaining, will only be aggravated, while it furniſhes the cultivator with an opportunity of examining into the occaſion of the ſeveral defects, and may lead to future prevention.

Thus, Sir, I have ſaid for the preſent, in a general way, every thing very material that the ſubject ſuggeſts: ſhould any one be deſirous of more particular information, I beg leave to refer him to the volumes of the Society's Tranſactions. A ſyſtem of culture is recommended in that of laſt year, I hope not the leſs effective for being ſimple;

and although its deſcription may be thought rather prolix by the general reader, yet perhaps not unneceſſarily ſo by the inquiſitive.

It therefore only remains for me to add a few words reſpecting my own plantation. The accompanying certificate, which I truſt is perfectly regular, will inform the Society, that in the year 1797 I have added 3040 to my former number, making an aggregate of nearly 5000 plants. The method I purſued was exactly that already referred to; and after this ſecond and more extenſive trial I confeſs myſelf unable to propoſe a better.

With this you will likewiſe receive a ſmall quantity of cured Rhubarb, being a part of the produce of my plantation, commenced under the auſpices of the Society in the year 1792; and I believe, conſidering its age, it equals any they may hitherto have ſeen. My only motive for this, is a deſire to offer ſome kind of proof in ſupport of my pretenſions to perſeverance. I hope I may be

permitted to ſend for it again, as it is all I have left, without a poſſibility of obtaining more till the next ſeaſon.

In concluſion, Sir, I can only repeat my former ſentiments, that the approbation of a Society, whoſe every object is for this public advantage, muſt reflect credit upon every individual who is fortunate enough to be ſo diſtinguiſhed. I have been ſo happy; and I take the opportunity to ſay, that this circumſtance I ſhall conſider, to the lateſt period of my life, as honourable in the greateſt degree; at the ſame time I flatter myſelf the Society will do me the juſtice to believe, that each repeated inſtance of their favour I eſteem as ſo many obligations to further and more important exertions. To yourſelf, Sir, I feel myſelf indebted for much politeneſs and attention on all occaſions: I hope you will accept my warmeſt acknowledgments, and the aſſurance that

I remain
Your much obliged
and very humble ſervant,

Mr. More. Thomas Jones.

Fiſh-ſtreet-hill, February 13, 1798.

THIS is to certify, that Mr. Thomas Jones, of Fiſh-Street Hill, London, has raiſed and planted, in the year one thouſand ſeven hundred and ninety ſeven, at four feet aſunder, three thouſand and forty plants of Rheum Palmatum, or True Rhubarb, in a piece of ground which he rents of me on Fourtree-Hill, in the pariſh of Enfield, and that they are in a thriving condition.

WILLIAM SHAW.

Fourtree-Hill, Feb. 10, 1798.

SIR,

I WAS duly favoured with yours of the 13th inſtant, and beg you will be ſo good as to inform the Committee of Agriculture, that I ſigned Mr. Jones's Certificate relative to his claim for Rhubarb. The plants were in a very thriving ſtate laſt ſummer, and the very few plants that failed were made good by freſh ones laſt autumn; ſo that the plantation is complete, and perhaps the moſt healthy in England.

I believe

I believe no one in this country pays more attention to the culture of Rhubarb than Mr. Jones. He has now many thouſand ſeed-bed plants; and the moment any one of thoſe tranſplanted ſeem to decay, it is replaced by a freſh plant.

I am, SIR,

Your very humble ſervant,

WILLIAM SHAW.

Fourtree-Hill, March 16, 1798.

SAMUEL MORE, Eſq. Secretary.

The GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS, at the option of the Candidate, being the Premium offered for the IMPROVEMENT of WASTE LAND, was this Seſſion adjudged to JOHN PEART, Eſq. of Settle, in Craven, from whom the following Accounts and Certificates were received, and who made choice of the SILVER MEDAL and TWENTY GUINEAS.

SIR,

I HAVE ſent by this day's poſt Certificates of Improvement of fifty-ſix acres three roods twenty-three perches of Waſte Land, to James Lambert, Eſq. of Hatton Garden, which I have requeſted him to lay before the Committee on Tueſday next; and if the Committee think the improvements therein ſtated deſerving of a Premium, you will have the goodneſs to ſtate to me their reſolutions

reſolutions upon theſe Certificates, and deliver any Premium they may adjudge to Mr. Lambert on my account.

I have alſo taken the liberty to ſtate to the Committee the money I have lately laid out in the cultivation and improvement of land, which, though it may not come within the deſcription of Waſte, yet previous to its improvement was not of more than ſeven ſhillings an acre in annual value; and, in the courſe of two years, I am of opinion it will be better worth twenty ſhillings an acre, per annum, than it was worth ſeven ſhillings per annum before its improvement.—The improvement in the ground mentioned in the Certificates is in too cold a climate for corn; but I doubt not the grounds limed and drained, and alſo thoſe ploughed or pared, and ſown with graſs ſeeds, will, in the courſe of two years, fatten any ſort of cattle.

It has always appeared to me, that little attention has yet been paid to the improvement and cultivation of paſture ground in this

this kingdom, in compariſon to the plough-ing land; and I doubt not but the preſent paſture land in the kingdom may be made to keep at leaſt one third more ſtock of cattle, and alſo keep them much better than they are now kept. Paſture land within theſe laſt ſeven years is much increaſed in value, therefore it now becomes more profitable to a proprietor to improve that ſort of land.—Good and fine graſs will grow in almoſt the higheſt climates in this kingdom. I have now a part which, ſeven years ago, was covered with ling, and now grows very fine herbage, and will fatten any ſort of cattle; and I doubt not, the improvements ſtated will pay ſeven per cent. for which I have my own land as ſecurity.

The improvements ſtated in the Certificates have altogether coſt me 834l. 16s. 9d. and nearly the whole expended in the laſt two years, and chiefly in labour. You will have the goodneſs to ſtate this letter and the Certificates to the Committee; and I hope the improvements are upon ſuch a ſcale, and

and of ſuch conſequence to ſociety, that the Committee will adjudge me a Premium.

I am now going on with other improvements in the ſame way, and on an extenſive ſcale, having purchaſed a large quantity of land, at preſent very bad, which I hope to make good.

I ſhall be glad to be favoured from you with the determinations of the Committee upon my Certificates as ſoon as they have given them their conſideration.

I remain, SIR,

Your very humble ſervant,

JOHN PEART.

Settle, Dec. 7, 1797.

Mr. MORE.

A CERTIFICATE *of* IMPROVEMENT OF LANDS, *lying waſte upon two Parcels of Ground, called the* Braa *and* Middle Bar, *part of an Eſtate called* Beecroft-Hall, *ſituate near* Horton, *in the Pariſh of* Horton, *in* Ribbleſdale, *in the County of* York, *between the 1ſt of March,* 1796, *and the 22d of November,* 1797; *and an Account of the Expence attending ſuch Improvement.*

	£.	s.	d.
Paid Richard Hird for ploughing 18 acres 22 perches of ground on the Braa, at 20s. per acre, - - - - -	8	3	9
Paid Jonathan Bracewell and partner for paring or puſh-ploughing 10 acres 3 roods 6 perches on the Middle Bar, at 16s. per acre,	8	12	6
Paid——Hey for paring or puſh-ploughing 4 acres on the Middle Bar, at 16s. per acre,	3	4	9
Paid ſeveral farmers in the neighbourhood for 1279 pecks of dreſſed hay-ſeeds (each peck containing two Wincheſter pecks), which have been ſowed on the above pared and ploughed ground: part coſt 1½d. and the remainder 2d. per peck, - -	9	4	5
Paid for building a lime-kiln on the Braa part,	10	0	0
Paid William Moor and partner for 3600 loads of lime (each load containing three Win-			
	£.49	3	5

	£.	s.	d.
Brought over,	49	3	5
cheſter buſhels) which have been laid on the above pared and ploughed ground,	97	10	0
Paid ditto for 1000 loads of lime which have been laid upon ten acres of ſward in the Braa, at 6½d. - - - -	26	1	8
Paid Richard Morſitt for loading the above 4600 loads of lime, at 1½d. - -	28	15	0
Paid Shepherd, Hudſons, and Co. for making 102 roods of ſtone wall, 2 yards high, each rood containing 7 yards in length, at 6s. per rood, - - -	30	12	0
	£.232	2	1

The ground above mentioned, previous to its improvement, produced only ling, and a ſtrong ſpungy moſs, except the ten acres of ſward, which produced a ſtrong tough white bent. The ſoil of the pared and ploughed ground conſiſts of about eight inches of black turf earth, and underneath a brown, mixed with gravel and clay. The ſoil of the limed ſward is about four inches of black earth, and underneath brown hazle mould. The pared and ploughed ground, in its original ſtate, appeared to be wet, but the proprietor finds it was only top

water

water retained by the moſs; and now that the ſurface is broke, it will require no draining. The beſt method of managing this ſort of ground (of which there are many thouſands of acres in this kingdom) is to pare or plough it in the autumn, ſow it with the common graſs ſeeds of the country in June following, about forty pecks to an acre; then lay the lime in heaps from the kiln, each heap containing ſix pecks, and the heaps ſeven yards from each other; when the lime has laid about two months, ſpread it upon the ſeeds, which by that time will have taken root. All cattle ſhould be kept off the ground for two years, and the third year it will fatten cattle, particularly ſheep, moſt wonderfully, and will in that time become a ſolid firm ſward. The proprietor can ſpeak with great confidence of the ſucceſs of this mode of management and improvement of land, as he, about ſeven years ago, pared about twenty acres of ling ground, of the ſame quality as the Braa and Middle Bar, on a paſture at Graſſington, awarded to him under an act of parliament for diviſion of ſome

ſtinted

ſtinted paſtures there: it was ſown with graſs ſeeds, and then limed in the manner before mentioned. This ground, which was ſeven years ago covered with ling, and on which the proprietor has frequently ſhot grouſe, is now fine paſture land, and will fatten any ſort of cattle. The paring of the ground is done nearly in the ſame way as land pared for corn. The proprietor does not burn the parings; they are juſt turned over, and left to rot in that ſtate on the ground. By way of experiment on the land at Graſſington, he ſet fire to, and burnt part of the parings as they lay upon the ground; but he does not now find any difference between the ground where the parings were burnt, and that where they were left to rot upon the ground. The proprietor never ploughed any of this ſort of ground before; he ploughed the ground by way of experiment, to find out whether paring or ploughing anſwers better: he is inclined to think there will not be much difference. If the ground be inclined to wet, perhaps making furrows may keep it dryer, and in

that

that reſpect be preferable. The climate of the Braa and Middle Bar is too high for corn; it would grow there, and be a very productive crop, but it would not ripen. The graſs-ſeeds are now in a flouriſhing ſtate. The proprietor is well ſituated for getting lime at a ſmall expence, which in this mode of improvement is a great object, as lime is the greateſt expence. The coals for burning lime are not near the ground improved, and there is plenty of lime rock in almoſt every part of the eſtate.

I GEORGE HOLDEN, Miniſter of the church of Horton, in Ribbleſdale, do hereby certify, that I reſide near to the eſtate called Beecroft-Hall; that I know John Peart, the owner thereof, and believe the account of expences ſtated by him in his account is true; as witneſs my hand, this fourth day of December, 1797,

GEORGE HOLDEN.

Witneſs to the ſigning hereof by George Holden, WILLIAM MOOR.

A CERTIFICATE *of* IMPROVEMENT *of* LANDS *lying waſte upon a Parcel of Ground called* Scoutber, *ſituate within* Rathmel, *in the Pariſh of* Giggleſwick, *in the County of York, between the firſt of January,* 1796, *and the firſt of January,* 1797; *and an Account of Expences attending ſuch Improvement.*

	£.	s.	d.
Paid Francis Tomlinſon and John Robinſon for graving 13 acres 3 roods 35 perches, at 3l. per cuſtomary acre, on Scoultber -	25	0	0
Paid Edward Brown and James Tomlinſon for 950 loads of lime, each load containing three Wincheſter buſhels, laid on the above graven ground, at 1s. 4d. per load -	63	6	8
Paid John Towers for 60 roods of wall fence, on Scoultber, two yards high, each rood 7 yards in length, at 4s. 6d. per rood -	13	10	0
£.	101	16	8

The above-mentioned piece of ground, before it was graved, produced only ſtrong ling: the ſoil conſiſts chiefly of about twelve inches of turbary, and, under that, gravel or

ſtone. The ground was ſtony, and could not be ploughed or pared. The ſtones that were looſe were got out for fencing. The proprietor has ſown about one third part of the above parcel of ground with graſs-ſeeds; and, by way of experiment, he has it in contemplation to leave the reſt to ſwarth, without ſowing ſeeds on it, in order to diſcover the difference. The proprietor has not much expectation of this improvement anſwering great profit to himſelf, by reaſon of the lime being ſo very expenſive, and the ſoil being of bad quality, being much lighter than the ſoils mentioned in the annexed Certificate.

I, JOHN PEART, of Settle, in the county of York, Gentleman, do hereby certify to the Society inſtituted in London for the Encouragement of Arts, Manufactures, and Commerce, that the account of expences (amounting together to the ſum of 101l. 16s. 8d.) mentioned for the improvement of a parcel of ground, called Scoultber, in

in Rathmel, in the parish of Giggleswick, in the county of York, of which I am the proprietor, is in every respect true and just. Given under my hand, this sixth day of December, 1797,

JOHN PEART.

I THE Reverend JOHN CLAPHAM, Vicar of Giggleswick, do hereby certify, that I believe the above-mentioned Certificate, signed by John Peart, is true. Given under my hand, this sixth day of December, 1797,

JOHN CLAPHAM.

CERTIFICATE *of the Expence of Improvements made on an Eſtate called* Beecroft-Hall, *ſituate at* Horton, *in* Ribbleſdale, *in the County of* York, *belonging to* John Peart, *of* Settle, *Gentleman; the whole of which Improvements have been done between the* 12*th of February*, 1796, *and the* 22*d of November*, 1797, *excluſive of the Works done on the Waſte Lands mentioned in the Certificate herewith ſent.*

	£.	s.	d.
Paid Richard Morfitt for making 29½ roods of fence, 7 yards to the rood, being ſtone wall, 2 yards high, in a field called Old Cloſe, belonging to Beecroft-Hall, -	8	17	0
Paid Thomas Clapham and partner for cutting, walling, and filling, 328 roods (7 yards to the rood) and 4 yards of draining in a paſture called the Mires, belonging to Beecroft-Hall, at 9d. per rood, and 1l. 1s. over	20	17	0
Paid Richard Morfitt for getting and leading ſtones for the above 328 roods, at 9d. per rood, - - - - -	19	16	0
Paid Richard Morfitt for making 71 roods of ſtone wall, 2 yards high, in the Mires, at 5s. 6d. per rood, - -	19	14	0
Paid Richard Clapham and Richard Morfitt for cutting, walling, filling, getting, and			
	£.69	4	0

	£.	s.	d.
Brought over -	69	4	0
leading ſtones, for 168 roods of drains in ſaid paſture, at 1s. 6d per rood, -	12	12	0
Paid Joſeph Redman and ditto for 112½ roods in ditto, at 1s. 6d. - -	8	8	4
Paid John Morfitt and ditto for 121 roods of drains finiſhing, at 1s. 6d. per rood, -	9	1	6
Paid John Heſleton and partner for 3342 loads of lime, each load containing three Winchester buſhels, laid upon the Mires, at 6½d. per load, - - - -	90	11	0
Paid John Morfitt for cutting, filling, and walling, 197 roods of drains on the Mires, at 9d. per rood, and 1l. 1s. over - -	8	8	9
Paid Shepherd for cutting, walling, and filling, 363 roods of drains, in a meadow belonging to Beecroft-Hall eſtate, called the Eight Acres, at 9d. per rood, and 1l. 1s. over, - - - - - -	15	2	6
Paid Thomas and Richard Clapham for cutting, walling, and filling, 720 roods of draining in the Mires, at 9d. per rood, and 2l. 2s. over, - - - - - -	29	2	0
Paid Edmund Morfitt for getting and leading ſtones for the above 197 roods, by J. Morfitt, at 9d. per rood, - -	7	7	9
Ditto, ditto, for ditto, for the above 720 roods, by Thomas and Richard Clapham, at 9d. per rood, - - - - -	27	0	0
Carried over	£. 276	17	10

	£.	s.	d.
Brought over, -	276	17	10
Paid Edmund Morfitt for the above 363 roods, by Shepherd, being farther to lead, -	18	3	2
Paid Richard Morfitt for making 20 roods of ſtone wall, in the Mires, 2 yards high, at 5s. 6d. per rood, - - -	5	10	0
Ditto Hudſon, Clapham, and Co. for making 65 roods of ſtone wall, 2 yards high, between the Mires and Eight Acres, at 7s. 2d. per rood, - - -	23	5	10
£.	323	16	8

The above ſum of 323l. 16s. 8d. has been expended by Mr. John Peart, the proprietor, in the improvement of about forty acres of ground. Before it was drained it produced chiefly ruſhes, and was of very ſmall annual value, and conſtantly wet and marſhy. The ſoil conſiſts of about twelve inches of black earth, inclined to turbary, and underneath that a ſtiff marly clay. The drains were hired to be cut a yard deep, and to be twenty inches wide at the bottom; they are walled on each ſide about eight inches high, and then covered with a ſtone.

Where

Where ſtones are to be had at a moderate expence, the proprietor thinks ſtone drains much preferable to thoſe covered with ſods; and though the expence (even where ſtones are near) is nearly four times the expence to the proprietor, yet he thinks it more profitable than ſod drains, particularly in paſture ground. In that part of the above-mentioned ground which was firſt drained, the ruſhes were this year much weaker, and the proprietor doubts not but in a few years they will entirely diſappear; and he believes that this ground will, after next year, be cheaper to a farmer at twenty ſhillings an acre per annum, that it was at ſeven ſhillings before the improvements:

I, JOHN PEART, of Settle, in the county of York, Gentleman, do hereby certify and declare to the Society inſtituted at London for the Encouragement of Arts, Manufactures, and Commerce, that the certificate expences for the improvement of two parcels of ground, called the Mires, and Eight Acres, parcel of an eſtate called

Beecroft-Hall, of which I am proprietor, is true; and that the ſum of three hundred and twenty-three pounds ſixteen ſhillings and eight pence, mentioned in ſuch certificate, as the total amount of expences paid by me for the improvements in the ſaid eſtate, hath been actually and *bonâ fide* expended and paid by me for ſuch improvements. Given under my hand, this 30th day of November, 1797, JOHN PEART.

Witneſs to the ſigning hereof by John Peart, LEONARD WILKINSON.

I GEORGE HOLDEN, Miniſter of the church of Horton, in Ribbleſdale, do hereby certify, that I reſide near to the eſtate called Beecroft-Hall; that I know John Peart, the owner thereof; and believe the account of expences mentioned, and alſo the Certificate ſigned by John Peart, is true. Witneſs my hand, this 4th day of December, 1797, GEORGE HOLDEN.

Witneſs to the ſigning hereof by George Holden, WILLIAM MOOR.

CERTIFICATE *of the Expence of Improvements made by* JOHN PEART, *of* Settle, *Gentleman, on an Eſtate in* Rathmel, *in the Pariſh of* Giggleſwick, *his Property, between the firſt of November,* 1794, *and the firſt of November,* 1797.

	£.	s.	d.
Paid John Monk, for cutting, walling, filling, getting ſtones for, and finiſhing, ſeventy-one roods of drains, in a parcel of ground called Wogdens - - - - -	5	5	0
Paid Houghton and Cook for ditto (four hundred and ſixty-nine roods of drains), at 1s. 7d. per rood, in ditto - - -	37	2	6
Ditto John Towers, for making 107 roods of fence in ditto, at 5s. per rood -	26	15	0
Ditto Edmund Brown, for 1000 loads of lime laid in ditto, at 8d. per load - -	33	6	8
Ditto Thomas Demayne, for leading ditto, at 6d. per load - - - - -	25	0	0
Ditto H. Ingham, for making 35 roods of ſtone wall, 2 yards high, at 7s. per rood, in a field called Croſs-Lands, in Rathmel	12	5	0
Ditto E. Brown, for 500 loads of lime laid on ditto, at 8d. per load - -	16	13	4
Ditto Thomas Demayne and Downham, for leading ditto, at 1s 4d. per load -	8	6	8
Carried over -	£. 164	14	2

Paid

Brought over -	£.	164	14 2
Paid Thomas Dodds for levelling this field, about ſeven acres - - -		6	0 0
Ditto for 400 pecks of hay-ſeeds ſown on ditto		3	11 8
Ditto for white clover-ſeed ſown on ditto -		2	15 6
	£.	177	1 4

The parcel of ground called Wogdens is the ſame ſort of land as the Mires, mentioned in the annexed certificate.

I, JOHN PEART, of Settle, in the county of York, Gentleman, do hereby certify to the Society inſtituted in London for the Encouragement of Arts, Manufactures, and Commerce, that the account of expences (amounting together to the ſum of 177l. 1s. 4d.) for the improvement of lands in Rathmel, in the pariſh of Giggleſwick, in the county of York, of which I am proprietor, is in every reſpect true and juſt. Given under my hand, this 6th day of December, 1797,

JOHN PEART.

I THE Reverend JOHN CLAPHAM, Vicar of Giggleſwick, do hereby certify, that I believe the above-mentioned Certificate, ſigned by John Peart, is true. Given under my hand, this ſixth day of December, 1797,

JOHN CLAPHAM.

SIR,

MR. Holden has ſent to me the letter you addreſſed to him, in which you expreſs a wiſh, on the behalf of the Committee, to be informed of the real quantity of land improved.—The quantity of land improved, lying waſte, is as follows:

A.	R.	P.	
18	0	22	On a paſture called the Braa, ploughed, limed, and ſown with graſs-ſeeds.
10	0	0	On ditto, limed, being a very ſtrong tough white beat, mixed with ling.
			N. B. Theſe two parcels of ground J. Peart has incloſed, from a very large tract of ground, into one paſture.
28	0	22	Carried over

Pared

A.	R.	P.	
28	0	22	Brought forward.
14	3	6	Pared, limed, and ſown with graſs-ſeeds, on a paſture called Middle Bar.
			N. B. The above three mentioned quantities are parcel of Beecroft-Hall eſtate.
13	3	35	Graved, limed, and part ſown with graſs-ſeeds, on a parcel of ground called Scoultber, ſituate within Rathmel, in the pariſh of Giggleſwick.
56	3	23	

The total quantity of ground lying waſte, improved by J. Peart, is fifty-ſix acres three roods and twenty-three perches, ſtatute meaſure.

As you mentioned to me in a former letter, that the Committee had withdrawn their premium for draining lands, I did not think it neceſſary to ſtate, in my certificate, the quantity of land which I had drained, limed, and fenced, as I did not ſuppoſe that ſort of improvement came within any of the claſſes for which the Society offer premiums. I have for their ſatisfaction ſtated the quantity below.

	A.	R.	P.
The Mires and Wild Bar, which is all limed, drained and fenced, contain together	42	2	0
Land drained in the ſix-acre meadow,	4	3	0

The above is alſo parcel of Beecroft-Hall eſtate.—The Mires and Wild Oar, previous to J. Peart's purchaſe, were valued by the late Mr. Lang, of Leyland, part at 5s. and the remainder at 6s. per acre. Their produce before the improvement was chiefly ruſhes.

Wogdens, ſituate within Rathmel, which has been limed, drained, and fenced, contains	17	2	0

N. B. This parcel of ground was purchaſed by J. Peart, in public auction, about 3 years ago, at £.100, and he has now let it for £.15 per annum, for 7 years, to be kept in graſs land.

Croſs-lands in Rathmel, limed, fenced, and ſown with graſs ſeeds, - -	7	3	20

N. B. J. Peart purchaſed this field in auction, when he bought Wogdens, at 50 guineas per cuſtomary acre; and ſince he ſent his former certificates, J. Peart has ſold it at 75 guineas per cuſtomary acre, which has left him a profit, beſides paying all intereſt and expences, of about £.50.

Statute meaſure	71	2	20

Should the Committee wiſh any further information which is in my power, I ſhall be happy to communicate it.

I remain,

SIR,

Your moſt humble ſervant,

JOHN PEART.

Settle, Jan. 27, 1798.

Mr. MORE.

SIR,

I WAS favoured with yours of the 16th inſtant; in anſwer to which I muſt ſay, that I *did ſign* the Certificate of Mr. Peart. I know he has made great improvements, and at a great expence; but I own I am a ſtranger to the number of acres contained in the land improved. I ſhall ſhew Mr. Peart your letter, and doubt not

he will be able to give you a ſatisfactory anſwer.

I am, SIR,

Your very humble ſervant,

GEORGE HOLDEN,
Miniſter of Horton Church.

Mr. MORE.

Horton, in Ribbleſdale,
Jan. 25, 1798.

SIR,

I RECEIVED your favour in due time, and have taken great pains to get an exact account of the quantity of acres improved by Mr. Peart. After I had obtained the beſt information, I deſired him to give me his account, in ſtatute meaſure, which agrees nearly with my information.

I believe Mr. Peart is a man of honour, and I could depend on his word; but I have not been guided ſolely by that. His own account accords ſo nearly with other perſons, whoſe

whoſe opinion I have aſked, that I thought I might ſafely and with propriety copy it.

The quantity of ground, in Statute Meaſure, upon an Eſtate called Beecroft-Hall, in the pariſh of Horton, in Ribbleſdale, in the County of York, improved by Mr. Peart, the owner.

	A.	R.	P.
In a paſture called the Braa, ploughed, limed, and ſown with graſs-ſeeds, the produce chiefly a ſhort ling before it was ploughed,	18	0	22
On the ſame paſture, limed, which was chiefly a ſtrong tough white bent,	10	0	0
In a paſture called Middle Bar, puſh-ploughed, limed, and ſown with graſs-ſeeds,	14	3	6
Two parcels of ground, called Mires and Wild Bar, fenced, drained, and limed, &c.	42	2	0
Total quantity in Horton Pariſh,	85	1	28

In a paſture called Scoutber, in Rathmel, in the pariſh of Giggleſwick, in the ſaid county of York, graved, limed, and part ſown with graſs-ſeeds,	13	3	33

In

	A.	R.	P.
Brought forward	13	3	33
In a paſture called Wogdens, in Rathmel, limed and drained, - -	17	2	0
In a paſture called Cinder Hill, in Rathmel, limed and drained - -	4	3	0
In a field called Croſs Lands, in Rathmel, limed and ſown with graſs-ſeeds,	7	3	20
Total quantity in Rathmel, in the pariſh of Giggleſwick, - - -	44	0	15

The above account I hope will be found a ſatisfactory one; and am,

SIR,

Your humble ſervant,

GEORGE HOLDEN.

Horton, in Ribbleſdale,
Feb. 20, 1798.

Mr. MORE.

SIR,

I BEG you will have the goodneſs to ſtate to the Society for the Encouragement of Arts, Manufactures, and Commerce, that I feel myſelf very highly honoured by them,

in their having adjudged to me their premium for improving land lying waſte; and, agreeably to the choice given by them to me, I will accept of the Silver Medal and Twenty Guineas, in preference to their Gold Medal. When the premiums are diſtributed, I could wiſh the Society would order what they have adjudged to me to be delivered to my bankers, Baron Dimſdale and Co. or to James Lambert, Eſq. Hatton Garden.

The ground at Rathmel, which I have improved, I intend keeping in my own occupation; and I ſhall, from time to time, have much pleaſure in communicating to the Society, with accuracy, the effects of my improvements; and I will alſo communicate the information my tenant at Beecroft-Hall may from time to time give me. I have had much pleaſure in looking over theſe improvements, and I doubt not but they will produce ſufficient profit. I am now employing ten men and ſeveral horſes, daily, in the improvement of graſs land.

The

The land at Graſſington, which I pared, limed, and ſowed with graſs-ſeeds, and which before that improvement produced a ſtrong ling, is not in my own occupation, but is let to a farmer.

I ſent your queſtions to him, which he anſwers as follows:

To the firſt—He ſays, the ground above mentioned will keep and fatten, between Lady-Day and Michaelmas, two ſheep on each ſtatute acre.

To the ſecond—He ſays, this ground will winter ſheep.

To the third—He ſays, he annually fattens Scotch ſheep on this ground.

To the fourth—He ſays, it annually fattens Scotch cows or Scotch bullocks.

To the fifth—The land is ſtocked with Scotch cows, or Scotch bullocks and Scotch ſheep: to every cow or bullock three ſheep.

Theſe are the anſwers of my tenant, to whom I ſent the queſtions you deſire to be anſwered. I let the paſture at Graſſington

for £.44 per annum, before the effects of the improvements could be known; at that price it paid me, for my improvements and the original purchaſe-money, a very high intereſt: my tenant ſays it is now a very cheap farm, though it was conſidered a high price by the neighbourhood when he took it.

The cattle fattened in this diſtrict of country (Craven) is principally Scotch ſheep and Scotch beaſts: when fat, they are ſold chiefly to Mancheſter, and the large manufacturing towns in Lancaſhire. The meat of ſuch cattle has a decided preference in thoſe markets. There is a breed of fine long-horned cattle in Craven; and the oxen cows (except ſuch of the latter as are wanted to keep up the ſtock of the country) are chiefly ſold into Leiceſterſhire and the ſouthern counties.

In the ſtocking of grazing land it is eſteemed good management for the farmer to allow his paſtures in the ſummer ſeaſon to be very full of graſs: by this the ground is improved, and the ſtock which he fattens

in

in ſummer can be kept without hay in the winter, and be in good condition.

I ſhall at all times be glad to give to the Society every information in my power, reſpecting the improvement of graſs land, in which much improvement is wanted, and in which I think very much may be done.

I remain, SIR,

Your obliged humble ſervant,

JOHN PEART.

Settle, March 26, 1798.

Mr. MORE.

PAPERS

IN

CHEMISTRY.

CHEMISTRY.

The Thanks of the Society were this Seſſion given to JOHN SNEYD, Eſq. of Belmont, in Staffordſhire, for the following Communication on the Subject of PRESERVING SEEDS OF PLANTS in a ſtate fit for Vegetation.

SIR,

MANY years ago having obſerved ſome Seeds which had got accidentally amongſt raiſins, and that they were ſuch as are generally attended with difficulty to raiſe in England, after coming in the *uſual way* from abroad, I ſowed them in pots, within a framing; and as all of them grew, I commiſſioned my ſons, who were then abroad, to pack up all ſorts of Seeds they could procure in abſorbent paper, and ſend ſome of them ſurrounded by raiſins, and others by brown moiſt ſugar; concluding

ding that the former Seeds had been preſerved by a *peculiarly favourable ſtate of moiſture* thus afforded them. It occurred, likewiſe, that as many of our common Seeds, ſuch as clover, charlock, &c. would lie dormant for ages within the earth, well preſerved for vegetation whenever they might happen to be thrown to the ſurface, and expoſed to the atmoſphere, ſo theſe Foreign Seeds might be equally preſerved, *for many months at leaſt*, by the kindly covering and genial moiſture that either raiſins or ſugar afforded them: and this conjecture was really fulfilled, as not one in twenty of them failed to vegetate, when thoſe of *the ſame kinds*, that I ordered to be ſent lapped in common parcels, and forwarded with them, would not grow at all. I obſerved, upon examining them all before they were committed to the earth, that there was a prevailing dryneſs in the latter, and that the former looked freſh and healthy, and were not in the leaſt infeſted by inſects, as was the caſe with the others. It has

been tried repeatedly to convey ſeeds (of many plants difficult to raiſe) cloſed up in bottles, but without ſucceſs; ſome greater proportion of air, as well as a proper ſtate of moiſture, perhaps, being neceſſary. I ſhould alſo obſerve, for the ſatisfaction of the Society, that no difference was made in the package of the Seeds, reſpecting their being kept in huſks, pods, &c. ſo as to give thoſe in *raiſins* or *ſugar any advantage over the others*, all being ſent equally guarded by their natural teguments. Whether any experiments of this nature have been made by others, I am totally ignorant; but I think that, ſhould this mode of conveyance be purſued ſtill more ſatisfactorily than I have done, very conſiderable advantages might reſult from it.

I am, &c.

JOHN SNEYD.

Belmont, Oct. 26, 1797.

Mr. MORE.

The

The Thanks of the Society were this Seſſion given to Mr. BROWNE, Chemiſt, at Derby, for the following Letter, deſcribing a quick and eaſy Method of converting Weeds and other Vegetable Matter into MANURE.

SIR,

ACCORDING to my promiſe to you ſome years ſince, I beg leave to communicate to the Society for the Encouragement of Arts, &c. and (if thought worth notice) by them to the world, a compoſition for Manure. Fearful it would not anſwer the purpoſe ſo fully as I could wiſh, I deferred from year to year troubling you; but I now find, both by numerous trials made by my friends, as well as myſelf, the very great utility of the compoſition, as well as its cheapneſs, with the capability of its being made in any ſituation and in any quantity,

quantity. The mode of making it is as ſimple as, I truſt, it will be found productive. It is nothing more than green vegetable matter, decompoſed by quick or freſh-burnt lime. A layer of the vegetable matter about a foot thick, then a very thin layer of lime, beat ſmall, and ſo on; firſt vegetable, then lime, alternately. After it has been put together a few hours, the decompoſition will begin to take place; and unleſs prevented, either by a few ſods, or a forkfull of the vegetables at hand, it will break out into a blaze, which muſt at all events be prevented. In about twenty-four hours the proceſs will be complete, when you will have a quantity of aſhes ready to lay on your land at any time you wiſh. Any and all ſorts of vegetables, if uſed green, will anſwer the purpoſe; ſay weeds of every deſcription. They will doubly ſerve the farmer, as they will not only be got at a ſmall expence, but will in time render his farm more valuable, by being deprived of all noiſome weeds.

But

But if this compoſition anſwers the purpoſe, as I flatter myſelf it will, a very ſhort time will ſee almoſt every weed deſtroyed, which ſuppoſing to be the caſe, I have made my calculations with clover, grown for the purpoſe; for inſtance, I will take one acre of clover, which at one cutting will produce from fourteen to eighteen tons of green vegetable matter, and about three tons of lime; this, when decompoſed by the above proceſs, will yield aſhes ſufficient to manure four acres, the value of which I eſtimate at ſomething under four pounds; the clover, according to the value of land here, I will ſay two pounds, which, take the average of the kingdom, is too much. The lime I will alſo ſay two pounds; but that will vary, according to the diſtance it is to be fetched. Take them together, I think will be about the average value. Now if this is the caſe, and as far as I have been able to try it I find ſo, how valuable muſt it be to the community in general! If it anſwers the purpoſe, I ſhall feel

feel myſelf much obliged by the Society making it as public as they poſſibly can.

The vegetables ſhould be uſed as ſoon after they are cut as poſſible, and lime as freſh from the kiln as the diſtance will allow of; as on thoſe two circumſtances depends the goodneſs of the compoſition.

I am, &c.

H. BROWNE.

Derby, April 27, 1798.

Mr. MORE.

The

The Thanks of the Society were this Seſſion given to ARTHUR WILLIAM DEVIS, Eſq. for the following Communication reſpecting the Culture of POPPIES, and the procuring OPIUM in the Eaſt-Indies.

SIR,

I SEND for the acceptance of the Society a ſmall iron inſtrument, called by the natives of Hindooſtan Nehrea,* and uſed by them for making inciſions in the capſules of the plants for the extraction of opium. As

* This inſtrument, whoſe exact dimenſions are ſhewn by the wood cut, is formed of two thin pieces of plate-iron, ſharpened at the broad ſemicircular edge; and each being wound round with thread, the two are faſtened together by other thread twiſted round them, and thus held at a ſmall diſtance from each other; one of the inſtruments is reſerved in the Society's Repoſitory.

NEHREA, *an Inſtrument uſed by the Natives of* Hindooſtan, *for making inciſions in the Poppy Head.*

As the cultivation of the Poppy in this country for the preparation of Opium has lately engaged the attention of this Society, I have taken the liberty to ſubjoin a few extracts from a memorandum on the ſubject, part of a work on the Arts, Manufactures, and Agriculture, of Hindooſtan, collected at various times during my reſidence in India. I do not pretend to any practical knowledge, but if it may afford the leaſt hint to thoſe engaged in the purſuit, I ſhall feel great pleaſure in the communication.

I am

Your humble ſervant,

A. W. DEVIS.

Mr. MORE.

" The greateſt quantity of Opium imported from India, is prepared in the province of Behar, the ſoil of which moſtly conſiſts of clay, with a conſiderable portion of ſand. The richeſt ſoils of this deſcription are preferred by the natives for the

cultivation of the Poppy, which is the PAPAVER SOMNIFERUM of Linnæus. The ground is ploughed ſixteen or eighteen times, and manured with the dung of cattle folded on it at night, or rotten cow-dung: the manure is ploughed in, and the ground thoroughly broken and carefully levelled with the harrow. The ſeed is ſown in the broad-caſt way; and the field is then divided into ſquares of four or five feet, leaving an interval, which is raiſed ſix inches; and on theſe ridges a channel is excavated to convey water to every ſquare, from a well near the field. The plants are five or ſix inches from each other, and are watered once a week, or oftener, until they are ſufficiently ripe for the extraction of the Opium. About ſeven days after, the flowers fall. When the capſules diſcover to the preſſure a degree of hardneſs, they begin to collect the Opium. At ſun-ſet, a double inciſion is made on each capſule, from the ſtalk upwards, at one ſtroke of the Nehrea: the operation is repeated every

ſecond day, for a fortnight or three weeks. The juice which has exuded during the night, from the wounds made the preceding evening, is ſcraped off the capſule with a ſmall iron ſcoop; this is done early in the morning, before the dew is diſperſed. The ſeeds are valuable for the oil they contain, and, as an article of food, are in great requeſt with the natives."

PAPER

IN

POLITE ARTS.

POLITE ARTS.

The GREATER SILVER PALLET was this Seſſion voted to Mr. TIMOTHY SHELDRAKE, for the following Diſſertation on PAINTING IN OIL, in a manner ſimilar to that practiſed in the ancient Venetian School.

THE method of painting practiſed in the Venetian School, I conceive to have been as follows:

The cloth was primed with colours in diſtemper, of a browniſh hue, ſuch as would properly enter into the darkeſt parts of the picture. The moſt tranſparent colours are the propereſt. I believe umber was moſt generally uſed, broken with red, yellow, or blue, according to the tint intended to be produced, and diluted with chalk or whiting to the proper degree of ſtrength. Upon

the ground ſo prepared, the ſubject was correctly drawn with umber, pure, or mixed with lake, blue, or black; and, with the ſame colours, thoſe ſhadows that were darker than the ground were then painted in.

The artiſt then painted the lights with *pure white*, in a ſolid body, where the light was brighteſt, or where the full effect of colour was to be produced; and, where the demi-tints were afterwards to be, ſcumbling it thinner by degrees, till it united with the ſhadows.

In this manner the chiaro-oſcuro was finiſhed as much as poſſible, and the local colour of every object in the picture glazed over it. All the colours uſed in this part of the work were ground in oil, which was abſorbed into the ground, the picture remaining flat, ſomething like a picture in water-colours or crayons; it was then varniſhed, till ſaturated with varniſh, and the full of every colour brought out: the picture was then complete.

Upon

Upon the moſt ſuperficial view of this proceſs, it will be evident that a picture painted by it is, as to all viſible properties, a varniſh picture; for the ſmall quantity of oil that had been uſed, ſunk into the ground, and never could riſe again to be hurtful; while the varniſh, being laid on after the colours, gave them all the brilliancy and durability they could derive from that vehicle, without being liable to the objections that are made to painting in varniſh, ſuppoſing it to be uſed in the ſame manner as oil is in painting with oil. It is true that this mode of painting is itſelf liable to ſome objections; theſe I have endeavoured to obviate, and ſhall therefore mention hereafter. Here it may be obſerved that, as any varniſh may be uſed, it is to this circumſtance we muſt attribute the different degrees of durability in pictures of the Venetian School. I have ſeen ſome that would reſiſt the moſt powerful ſolvents, while others were deſtroyed by the weakeſt; though all poſſeſſed

the

the apparent properties that diſtinguiſh the Venetian pictures from all others.

As I do not pretend to degrade painting to the rank of a mechanical art, that may be infallibly practiſed by a receipt, I ſhall be permitted to obſerve, that this was the general ſyſtem of the Venetian ſchool, which I have ſeen variouſly modified in the works of different artiſts of that, as well as of the Flemiſh, which is derived from it. It is ſuſceptible of an almoſt infinite number of modifications, in proportion to the talents, the judgment of, and the objects to be painted by the artiſts who may adopt it. This being the caſe, if it is proved by experiment that effects ſimilar to thoſe of the Venetian pictures may be produced by this method, and that the ſyſtem has a ſtrong tendency to produce that brilliancy, and harmony of colouring that is ſo much admired, with more certainty and facility than thoſe qualities can be obtained by any other mode of painting, I hope my caſe will be proved to the ſatisfaction of the Society.

I once

I once aſked Sir Joſhua Reynolds, by what circumſtances in the management of a picture he thought the harmony of colouring was to be produced? He replied, an unity of light and an unity of ſhadow ſhould pervade the whole. He explained to me the difficulty of reducing the various colours of all the objects that may be included in a picture, and the various modifications of thoſe colours to the ſimple, harmonious ſtate he deſcribed, and illuſtrated what he had ſaid by this ſimile. "A picture, to poſſeſs harmony of colouring, ſhould look as if it was painted with one colour (ſuppoſe umber and white), and, when the chiaro-oſcuro was complete, the colour of each object ſhould be glazed over it."

This obſervation, from ſuch authority, was impreſſed with peculiar force on my mind; and if I can retrace its operations on a ſubject which has ſo long engaged my attention, I ſhould ſay Sir Joſhua's obſervation was the clue that guided me through all my experiments, and, I hope, will enable me to prove,

prove, that the beautiful and ſimple practice which he ſuggeſted as a ſimile, was literally the practice of that ſchool upon whoſe works his ideas of colouring were founded. At the ſame time I may obſerve, that the fact ſeems to have eluded his obſervation, or he would not have uſed it as a compariſon to ſimplify his deſcription of a practice which he thought both difficult and complex.

In the Newtonian doctrine of Light and Colours, it is believed that all colours are inherent in light, and are rendered viſible by the action of various bodies, which reflect particular rays, and abſorb the reſt. Without diſputing the truth of this doctrine, it is to be obſerved, that a painter muſt conſider the objects he repreſents as being analogous to the materials he uſes to repreſent them; and, in this view of the ſubject, colour is to be conſidered as a property inherent in bodies, which is rendered viſible by the contact of light, a colourleſs, or at leaſt a mono-coloured ſubſtance, and ſhadow the mere privation of light.

A picture may repreſent either a group of figures, or other objects, in a room, or any objects in the open air: whatever the ſituation may be, it repreſents certain objects in a given ſpace, poſſeſſing individually their peculiar colours, and generally expoſed to the operations of light. The quantity of light each can receive muſt depend upon its form, and its poſition reſpecting that part whence the light comes; for, in proportion as other parts recede from the light, the ſhadow becomes viſible: but ſhadow is nothing but privation of light, and privation of colour, in proportion as the light is diminiſhed. Some attention to theſe circumſtances will, perhaps, enable us to demonſtrate the truth of Sir Joſhua's poſition.

If a globe of one colour be expoſed in a painter's room, properly darkened, that part which is neareſt the light will partake of its colour; the next part will ſhew the true colour of the object: that which firſt recedes from the light will be a little obſcured, the next a little more, and ſo on progreſſively,

progreſſively, till that part which is fartheſt from the light will loſe its colour, and appear equally dark with the ſhadieſt part of the room. Now we know this globe is of one uniform colour; the variations we ſee in different parts of it are only deceptions, occaſioned by the acceſſion of light in ſome parts, and the privation of it in others.

What is true of this one object and its parts, would be equally true of any number of objects, whatever their colours or relative ſituations might be: if they were placed together in the ſame room, each would poſſeſs its own individual colour, each would partake of the general light, in proportion to its ſituation, and of the general darkneſs in proportion as it recedes from the light. All this may be eaſily conceived; but the difficulty, and, in the ordinary modes of painting a ſerious one it is, is to repreſent ſuch objects with the appearance of truth, and preſerve the harmony neceſſary to conſtitute a whole. The Venetian painters however, by whatever means they obtained their

their knowledge, diſcovered a method ſo ſimple, that perhaps no other can produce ſuch brilliant effects, and undoubtedly not with facility and certainty at all comparable with theirs.

The artiſt will remark that, in deſcribing the whole of the Venetian method of painting, I have ſaid nothing of the manner of producing thoſe demi-tints which conduce ſo much to the brilliancy of a picture, which are ſo difficult to execute, and in which he moſt frequently fails. Thoſe tints are, in the ordinary modes of painting, produced by the mixture of black, grey, blue, or brown (according to the judgment of the artiſt), with the local colours of the objects. It is theſe tints which, from their being made with ſuch colours, it is difficult to get clear, and which never are ſo clear in any other as in the Venetian, and in ſome of the Flemiſh pictures, which are painted upon analogous principles. The fact is, that thoſe painters produced all ſuch tints without the admixture of any colour

to repreſent them, and by a method ſo like that by which they are produced in nature, that this circumſtance alone enſures a degree of brightneſs to their colours, and of harmony to their ſhadows, that it is perhaps impoſſible to produce, in an equal degree, by any other mode of painting.

It is a ſingular fact, which I have not ſkill in phyſics to be able to account for, though by numerous experiments I have aſcertained beyond contradiction, that if upon any degree of brown, between the deepeſt and the lighteſt brown yellow, we paint pure white, in gradations, from the ſolid body to the lighteſt tint that can be laid on, *all the tints between the ſolid white and the ground will appear to be* GREY, intenſe in proportion to the depth of the ground, and the thinneſs of the white laid upon it. But in every caſe all the tints laid upon one ground will harmonize with each other, and form one connected chain (if I may uſe the expreſſion), which will perfectly unite the higheſt light with the darkeſt ſhade.

If

If then we examine the component ſubſtances of a Venetian picture, we ſhall find the lighter parts conſiſt only of white, to repreſent the light; and of the local colours of the objects it repreſents, the demi-tints are imitated by an *appearance* almoſt as deceptive as the ſimilar appearances in nature: but in every other method of painting, theſe demi-tints are produced by mixing ſome duſky colour with the local colours and the light. The compariſon of theſe methods will afford a demonſtrative reaſon why the Venetian muſt be brighter than any other mode of painting.

Having ſhewn, as near to a demonſtration as the nature of the ſubject will perhaps admit, why thoſe parts of a Venetian picture that are connected with light and colours are brighter than the correſponding parts of any other pictures, it remains to explain the cauſe of ſimilar ſuperiority in the darker parts of the ſame pictures.

It has been ſaid, with much confidence, that as white repreſents light, ſo black is

the repreſentative of darkneſs. But though this may be true in phyſics, it certainly is not ſo in painting: for the painter's art is to repreſent objects as they *appear*, in point of colour, to be, not as they really are. Thus, if I know an object is perfectly black, and am to repreſent it as it appears to be at the diſtance of fifty feet, black from the pallet will not produce a good imitation of it, becauſe the interpoſition of fifty feet of the atmoſphere will cauſe it to appear of a colour different from what it really is; and *vice versâ*, if we go into a cavern, a cellar, or a room, ſo darkened that the colour of no object can be diſtinctly ſeen, and if we there hold any ſolid black ſubſtance near to the eye, the difference will be viſible at once; the black object will be immediately diſtinguiſhed, by its ſolidity and colour, from the ſurrounding ſpace, and ſuch remote objects as may be obſcurely viſible through it. Theſe objects actually poſſeſs their individual colours, and only appear indiſtinctly from the abſence of light. The black object may appear ſolid,

and of that colour, from its proximity to the eye; but the circumjacent ones will appear of a colour perfectly diſtinct from it, more or leſs tranſparent, in proportion to their diſtance from the eye, and ſhewing a portion of their individual colours, according to the quantity of ill-defined light that may be admitted. Thus we ſee (if I may venture to mention ſo notorious a truiſm), that ſhadows are nothing real; they only ſeem to exiſt in the abſence of light, and give to objects an ill-defined appearance, diſtinct from, though in ſome inſtances mixed with, light and colours in different degrees: but as the painter muſt repreſent this *appearance* by ſomething *real*, he chooſes the colours moſt analogous, viz. browns, and the moſt tranſparent of their claſs, to repreſent this tranſparent, but imperfectly defined appearance in nature.

It has been ſuppoſed that the Venetian painters had ſome peculiarly rich and tranſparent brown colour, which is ſeen to pervade all the works of that ſchool; the effect

of which no modern artiſt has been able to imitate, and which therefore is ſuppoſed to have been loſt. It is not very probable that a colour ſo common, as to pervade the works of the worſt as well as of the beſt artiſts of that ſchool, ſhould be ſo unaccountably loſt; and, as the effect attributed to it may be eaſily produced by the mode of painting I have deſcribed, it is not unreaſonable to conclude that this much-lamented colour has never exiſted.

It is well known that chalk, and other earths of the ſame kind, loſe, when wetter, much of their whiteneſs, and become ſemi-tranſparent: it is equally certain, that if umber or other earths are mixed with chalk, and ſaturated with varniſh after they are laid in the cloth, they in like manner become diaphanous, and are infinitely more brilliant than the ſame colours can be when mixed with white lead and oil. This ſeems, on good grounds, to have been the baſis of the Venetian method of painting, and all its peculiar effects; at leaſt, if I may draw any concluſion

concluſion from the numerous experiments I have made. But if artiſts, whoſe talents will enable them to repeat thoſe experiments to the beſt advantage, ſhould be induced to do ſo, the fact will be determined in the moſt ſatisfactory manner.

I may now be permitted to ſay, it is difficult, if not impoſſible, to conceive a theory more ſimple, more beautiful, or more true, than that of Sir Joſhua Reynolds. It is certainly impoſſible to form a practice more ſimple, or more conformable to that theory, than the one I have deſcribed, as will be evident on recapitulating the particulars.

The artiſt, having determined what hue ſhould pervade his picture, formed his ground with that colour prepared in diſtemper; upon this the ſubject was drawn, and the darker ſhades painted in with tranſparent colours, which ſunk into the ground: with pure white he then painted in all the lights and demi-tints, and, laſtly, glazed in the colours, each in its place. Upon applying the varniſh, the darker ſhades

were, as to body, incorporated with the ground; and thus, though different in colour, appeared thinner and more tranſparent than any colours could be when laid upon any ground: the full effect of every colour was brought out, and the picture was complete.

Whoever has been accuſtomed to paint, or to mark the progreſs of painting in the common way, and will reflect on the practice of the method I have deſcribed, by artiſts who had been brought up to it, muſt ſee that ſuch artiſts would paint with a degree of facility, expedition, and certainty, as to effect, that could never be equalled in the ordinary way of painting in oil; beſides, it will be evident that an artiſt would not only paint a picture himſelf with more facility, but, if he had occaſion, could employ a number of ſubordinate artiſts upon large works, and put thoſe works out of hand with more uniformity, as to merit and effect, than if he were to employ ſuch aſſiſtants in ſimilar works if they were to be painted in the common way.

I am

I am ſenſible how little attention will, and perhaps ought to be paid to obſervations on painting, if made by thoſe who are not profeſſionally artiſts: for practical men acquire a kind of knowledge that can never be obtained in any other way; but at the ſame time they contract prejudices that often prevent them from fully inveſtigating any novelty in practice that may be offered to their notice. The ſpeculative man, on the contrary, who inveſtigates the properties of matter, unſhackled by practical prejudices, and with ideas purely chemical or philoſophical, will be more likely to aſcertain all the facts relative to any theory that may become the object of enquiry. In this way I hope I have proceeded in this inveſtigation. I have endeavoured to conſider pictures as maſſes of matter, poſſeſſing the properties, but differing from each other in degree of brilliancy, tranſparency, and duration. I have endeavoured to aſcertain the cauſes of this difference, with what ſucceſs the Society will determine, and with what

utility, muſt be hereafter aſcertained, by the practice of thoſe for whoſe uſe the inveſtigation was intended.

I ought, perhaps, here to take leave of the ſubject; but as I have been induced to ſubmit to the Society's notice an attempt at painting, it may be expected that I ſhould give an account of the manner in which the pictures I have ſent were painted.

I have already mentioned, that there are ſome difficulties in the method of painting I have deſcribed, as being that of the old artiſts, and which would form objections of conſiderable force to the practice of it by artiſts who are well acquainted with the uſual modes of painting: theſe difficulties are, firſt, the ground abſorbs the oil from the colours ſo faſt, that they are not ſo manageable as in oil-painting; ſecondly, the effect of the picture is not ſeen till the finiſhing varniſh is laid on; and thirdly, as the effect is not ſeen till the picture is finiſhed, it will ſometimes diſappoint the artiſt, and in that caſe it will be difficult, if at all practicable, to alter it.

As I believe the proceſs I have deſcribed in the beginning of this Paper is ſimilar to that of Miſs Provis, the artiſts who are acquainted with her recipe can aſcertain whether my conjectures on this ſubject are right or not. I am certain at leaſt that theſe difficulties occurred in my attempts to paint, and to obviate them I adopted the following proceſs.

I prepared the ground in diſtemper, and painted the dark parts in the way I have deſcribed; I then varniſhed the ground with the copal oil-varniſh, till it was fully ſaturated, and by this means the full effect of that part of the picture was ſeen; upon this I painted the lighter parts with white, uſing much of the vehicle where the colour was thin, and little in the ſolid parts, leaving the white in them dead: by this means I underſtood the effect of my chiaro-oſcuro, as I ſaw the effect of the demi-tints nearly as well as when the picture was finiſhed.

Upon this I glazed the colours, in the way I have deſcribed in the beginning of this

this Paper, and finiſhed the picture. I often found (probably from want of practice) that the effect was different from what I intended, as the effect of the colours, added to that of the chiaro-oſcuro, produced an eſſential alteration in the whole; as I took care in general that the defect did not ariſe from too much white, I added more where it was deficient, and glazed freſh colours over it, which united perfectly with what had been done before, and did not give the appearance of a mended picture. If the defect was from too much white, I glazed on it a colour ſimilar to that of the ground, painted with freſh white upon that, and glazed the proper colours over it. In this way I found I could alter the picture, but not ſo well as in the former caſe.

I found I could, when neceſſary, increaſe the effect of the picture, by painting on the principal maſs or maſſes of light with the local colours, only mixed with white; as this practice brought thoſe parts more forward, by making them appear ſolid, and thus contraſting

traſting them with the tranſparency of the reſt of the picture. In this way I found I could uſe the colours tempered with copal varniſh without difficulty; and I believe, that if I had been accuſtomed to paint large pictures, I could have painted one as large as life as eaſily as either of thoſe I have ſubmitted to the Society's inſpection.

I am

The Society's moſt obedient

humble ſervant,

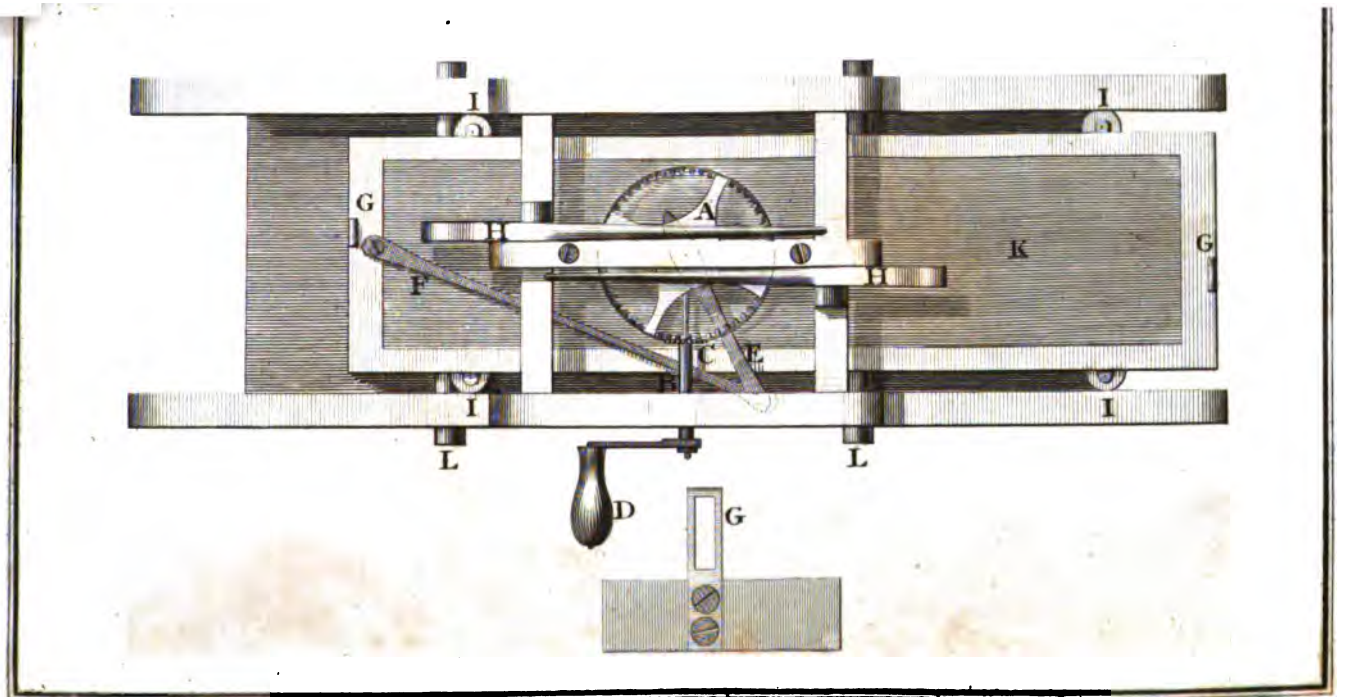
TIM. SHELDRAKE.

Strand, Feb. 14, 1798.

PAPERS

IN

MECHANICKS



A Plan of an improved Mangle by Mr. George Jee.

MECHANICKS.

In conſideration of the merit of the MANGLE invented by Mr. JEE, the Society this Seſſion voted their SILVER MEDAL to him; and Plates, and a Deſcription of the Mangle, are annexed, and two complete Models reſerved in the Repoſitory, for the uſe of the Public.

I BEG leave to preſent to the Society for the Encouragement of Arts, Manufactures, &c. for their inſpection, the Model of a Machine (of my own invention) for Mangling Linen.

This Mangle is ſo conſtructed, that the handle is required to be turned one way only, which moves the machine more ſteadily, and ſafer to the linen, than by varying the turnings of the handle. I have made ſeveral Mangles on this conſtruction at large, which have anſwered the purpoſes very well, and given

given general ſatisfaction to all who have ſeen them at work. It is found, that a woman and a boy are ſufficient to work this Mangle, and can do as much work (in the ſame time) as three or four perſons at any other I have ſeen. This induced me to preſent it to the Society, knowing of no other way ſo likely to convey it to the community at large, as through the channel of your excellent yearly publication of the Tranſactions of the Society. If it is found worthy of a place in the Society's Repoſitory, and they think it worth laying before the public, it is at your ſervice, and will give me the greateſt ſatisfaction.

I am, SIR,

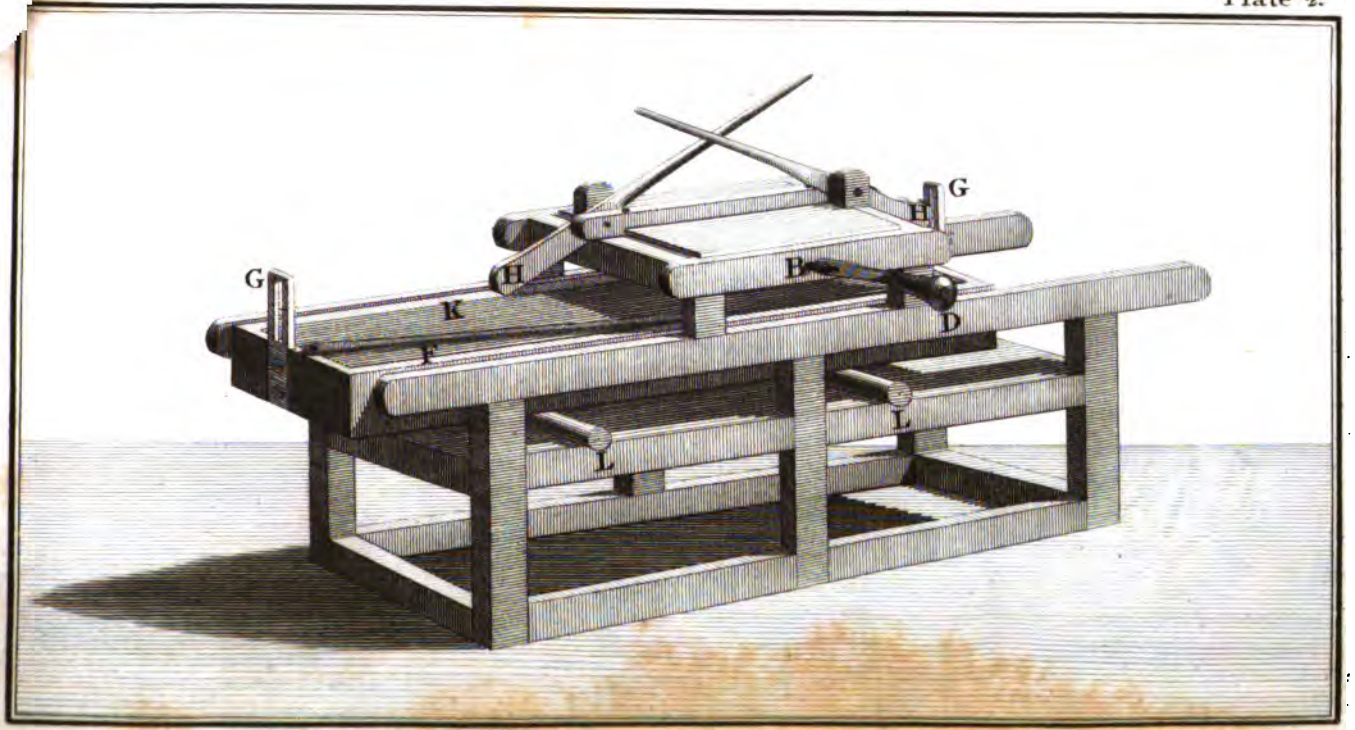
Your moſt obedient,

very humble ſervant,

GEORGE JEE.

Rotherham,
April, 24, 1797.

Mr. MORE.



A View of Mr George Lee's improved Mangle.

The DESCRIPTION *of* PLATE I.

A, The great wheel, which in the Machine at large is fifteen inches diameter. B, the arbor, on which the nut C is fixed. D, the handle of the winch. E, the crank, twenty-one inches long. F, the rod of the crank. G G, the hollow ſtuds, to lift the ends of the bed up. H H, the levers. I I I I, the four pullies fixed on the moveable bed. K, the moveable bed. L L, the ends of the rollers.

At the bottom of this Plate is a front view of one of the hollow ſtuds, G, to ſhew its form, as ſtanding at the end of the bed, and into which the levers alternately enter, when it becomes neceſſary to lift up the bed to put in or take out the rollers.

PLATE II. is a perſpective view of the Mangle when at work; the letters of reference to the ſeveral parts being the ſame as in Plate I.

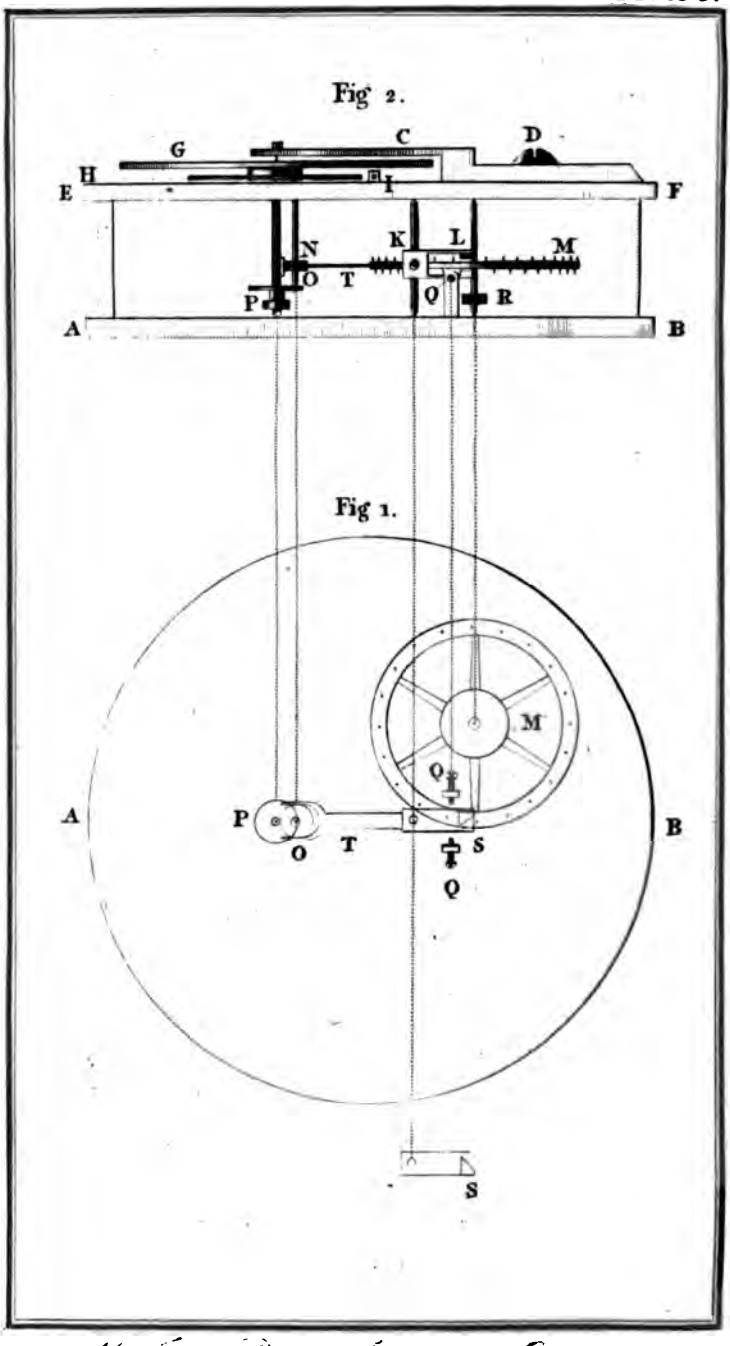
A Bounty of THIRTY GUINEAS was this Seſſion voted to Mr. JOHN PRIOR, for his improved detached ESCAPEMENT FOR WATCHES, a Plate and Deſcription of which are hereunto annexed, and a complete Model reſerved in the Society's Repoſitory, for the inſpection and uſe of the Public.

SIR,

AS all our beſt writers on watches agree, that the longer the vibration of a balance is, the better it will keep time, and as no detached Eſcapement has been made (that I know of), in which the balance paſſes over the ſame ſpace in one vibration that mine does; I am encouraged to preſent this Machine, with a Drawing, and an explanation of the ſame, for the inſpection of the Society.

The

Plate 3.



Mr. John Prior's Improved Escapement.

The DESCRIPTION *of the new-invented* DETACHED ESCAPEMENT FOR POCKET WATCHES, &c.

Fig. I. and *II.* repreſent the principal parts of it.

Fig. I. A B, the pillar-plate; and A B E F. *Fig. II.* is a ſection of the frame, without pillars or potance. C, the cock, ſcrewed to the potance-plate at D. G, the balance, the lower point of which runs in the plate (but perhaps a potance will be more convenient for it in a pocket watch). H, the regulating ſpring, pinned faſt in the ſtud at I. O, the friction wheel; N, its arbor, the higher pivot of which runs in the collet the balance is rivetted to, and the lower in a collet ſcrewed faſt on the balance-arbor at P: ſo, when the balance turns round, the friction-wheel is taken along with it.

M, the intermittent lever-wheel. L, its arbor; R, its pinion, in the rim of which

wheel are put an equal number of pins on each ſide. The pins on one ſide of the wheel are put exactly at the middle diſtance of thoſe on the other ſide.

T, the intermittent lever, ſcrewed faſt to K, its arbor. QQ are its banking ſcrews.

This lever is all made of one ſolid piece of ſteel. That end of it next the wheel is cut open wide enough to receive the rim, without touching either ſide of it, as far as the pallets or inclined planes are; at the end of which it is cut wider, to admit the pins of the wheel. (See *Fig. II*, a ſection of it as under L.)

The diſtance from the centre of the balance to the extreme part of the lever, or end of the pallets, is divided, in a right line, into ten equal parts, and the pivot-hole of the friction-wheel is made at the firſt tenth diviſion from the centre of the balance. There are thirteen ſemi-diameters of the friction-wheel from its centre to the end of the pallets.

When

When the balance is at reſt, then the centre of the balance, the centre of the friction-wheel, and the centre of the lever, will be all in one right line. (See *Fig. I.*)

The lever is divided into three equal parts. The diſtance from the end of the pallets to the centre of motion of the lever, one part; and from the centre of motion to the centre of the friction-wheel, when the balance is at reſt, two parts: ſo that, whatever the velocity may be at the end of the pallets when in motion, that part of the lever, or the forked part of it, which is oppoſite the centre of motion of the friction-wheel, will be twice as much.

S S repreſents a ſuperficial view of the pallets. The pallet below the pillar-plate is taken off from the other, otherwiſe the place of action could not be ſeen in the drawing.

In *Fig. I.* we have a view of the lever before the machine is wound up: a pin is half-way down the pallet; but when the pin

impels the pallet, the lever moves, and gives motion to the balance, and the pin is diſengaged from the pallet at the angle: that inſtant a pin, on the oppoſite ſide of the wheel, falls upon a circular part of the end of the other pallet, or upon that part where it and the lever are entirely at reſt, until the balance makes its return, and the friction-wheel comes into the forked end of the lever. Then the friction-wheel impels the lever, while the balance runs over the ſpace of about twenty degrees, in which time the pin is diſengaged, from a place of reſt to a place of action, where it impels the lever while the balance runs over the ſpace of about one hundred degrees. Then the pin drops off at the end of the pallets as before, and the balance is entirely left at liberty; at which time its velocity is ſo great, and its motion ſo eaſy, that it turns once round upon its pivots, and two hundred and forty degrees every vibration.

It is to be obſerved that, in the ends of the fork, one part is turned up and the other down,

down, in order they may not both go through one notch in the balance-arbor; for, by having two different parts cut away, the fork is locked faſt in every vibration, and is unlocked only by the friction-wheel, in its return for another vibration.

Notwithſtanding the balance makes one turn and two hundred and forty degrees every vibration around its axis, yet, when the balance is at reſt, and the ſame power applied to it (which keeps it in motion as above), the balance will only move through the ſpace of about fifteen degrees, which is only one fortieth part it keeps it up to when in motion.

It muſt be allowed, the leſs the wheels, or the power, have to do with the balance, the more accurate the time will be ſhewn.

I ſhall ſay no more on this ſubject, but refer it to the Society for the Encouragement of Arts.

SIR,

IN anſwer to your favour of February 10, I have to inform you with what intention I apply to the Society.

Firſt, My intention was for a bounty or premium, if the Society ſhould judge my New Eſcapement worthy.

Secondly, It was not my intention to ſecure this invention to myſelf, by obtaining a patent for it, but to lodge it in the Repoſitory for the inſpection of the Public.

Thirdly, I can ſincerely ſay, I never heard, by any perſon or perſons whatever, nor had the leaſt knowledge or information by any one living, relating to Mr. Mudge's Anchor-Scape, before I now came to London, nor even heard its name mentioned before you wrote your laſt letter to me.

I have, a few days ago, ſeen Mr. Mudge's Anchor-Scape, and find the wheel and pallets to be exactly like thoſe of a common clock with the dead ſcape. The only difference (in that which I ſaw) is the addition of an arm, whoſe length is the ſame from the

the centre of motion the pallets are of, the uſe of which is to give motion to the balance againſt two ſteps. The teeth of the wheel reſt, after every vibration, upon the outſide of one, and on the inſide of the other pallet, alternately. If that part where the tooth reſts be not exactly part of a circle, whoſe centre is the axis of the pallets, the balance, while diſengaging a tooth from a place where it ſhould reſt, will give motion to the wheel, and in ſo doing will find it more difficult to unlock, than it would be if that place was entirely circular. How theſe places of reſt are to be made entirely ſo without turning, I cannot tell; and if turned, time will be found neceſſary in the execution.

But, to make the Anchor-Scape ſtill more complete, the places where the tooth of the wheel reſts after every vibration ſhould be equal, and as ſhort as poſſible with ſafety, that the balance may looſen them with the leaſt power; but if the places of reſt be equal (as they ſhould be), the balance

balance will paſs over more degrees in diſengaging a tooth on the inſide of the pallet, than it would do in looſening the other one on the outſide.

In my new-invented Eſcapement, the places of reſt are equal, and at an equal diſtance from the centre of motion (which cannot be the caſe of the Anchor-Scape), and both turned with eaſe at the ſame time: ſo the balance will paſs over an equal number of degrees, in diſengaging a pin from a place of reſt to a place of action, on each pallet, alternately.

The centre of motion of my lever is at one-third of its length: ſo, whatever the velocity of the pallets may be, the forked end of it is twice as much, and will follow the balance through one third more ſpace than the Anchor-Scape can do, which I ſaw at Mr. Howel's, or perhaps more, and by that means will cauſe the balance to turn entirely farther; and when the balance vibrates farther, all kind of external motion does

does not affect the vibrations ſo much as they would be if the balance vibrated leſs.

The ſame may be ſaid of the force from the main ſpring, which is communicated, through a train of wheels and pinions, up to the balance, which force will not be entirely equal, though executed by the beſt workman. But the vibrations of the balance will be entirely more uniform, though the impulſes given to it through a train of wheels, &c. be unequal, than they would be by the ſame power or impulſes, if the balance vibrated leſs.

The objections which may be made by thoſe who do not underſtand it, is the increaſe of friction upon the balance pivots; but that will be done away, when the ſuperior advantages are conſidered in their proper light.

And as the balance is that part of the watch which regulates the whole machine for time-keeping, it is neceſſary its motion ſhould be diſturbed the leaſt poſſible, both in receiving the impulſes, and diſengaging that

that part which gives it motion: this was my reaſon for introducing the friction-wheel, which goes into the fork of the lever at every vibration, diſengages a pin from a place of reſt, to where it acts upon the pallet, with as much more eaſe than it would have done (if the ſame diameter had been fixed), as the diameter of a pivot of the friction-wheel is contained in the diameter of the wheel, which may be twenty, or nearly thirty times: this, and the length of its vibrations, will add greatly to the perfection of its time-keeping.

If a wheel, which is going to be cut by an engine, be not put exactly in the centre of the circle the diviſions are put upon, though the diviſions are mathematically true, the wheel will be far from being ſo. Apply ſuch a one to the Anchor-Scape, and it incloſes as many errors as there are teeth between the pallets. Apply the ſame erroneous diviſions to my Eſcapement, and the errors will be four or five times leſs in mine than in the Anchor-Scape; and I ſuppoſe this

this cannot be got over. But if I have misrepreſented any thing in either Scapements, it was not my intention to do ſo; therefore hope for pardon, and can only wiſh the Society to conſider my new-invented Eſcapement in the ſame light as they would wiſh others to conſider one of their own invention.

JOHN PRIOR.

Nesfield, near *Skipton*,
Craven, *Yorkſhire*.

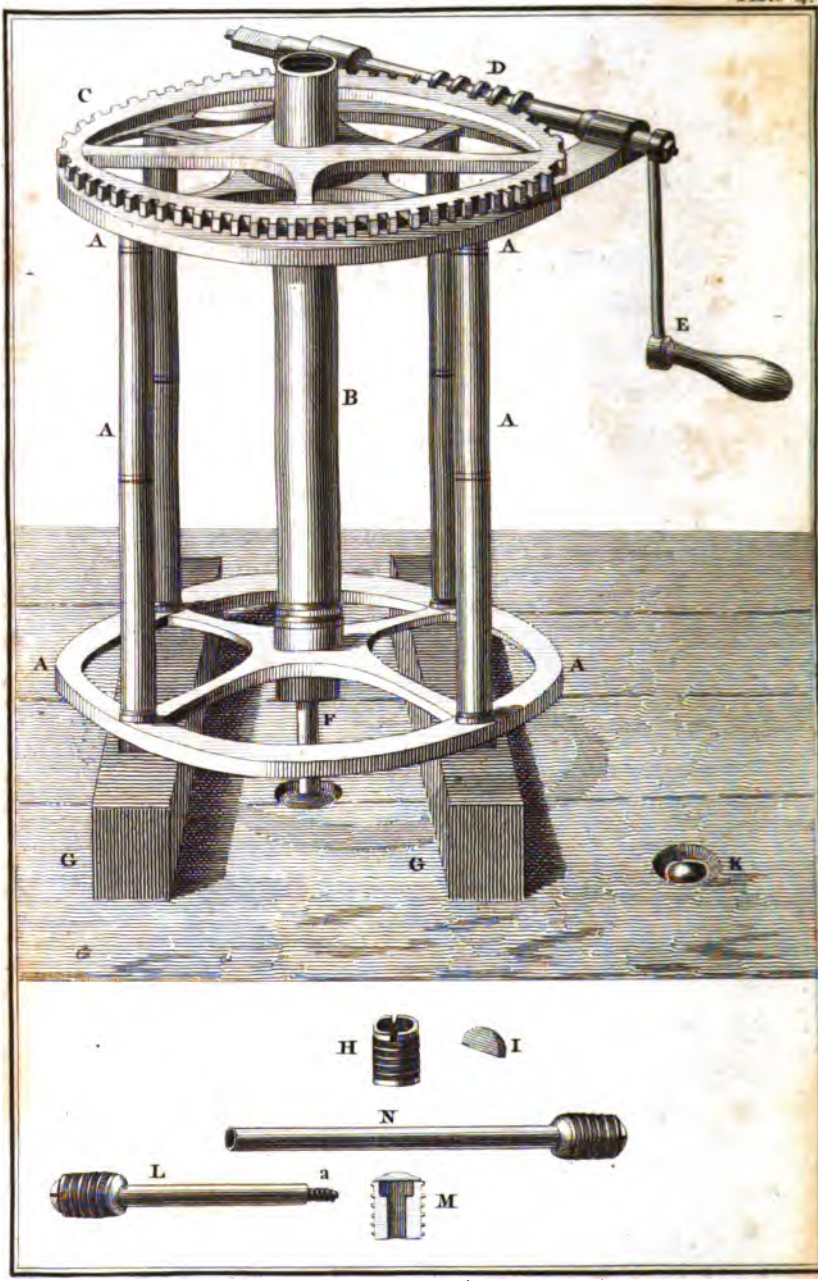
Mr. MORE.

The

The GOLD MEDAL was this Seſſion adjudged to Captain WILLIAM BOLTON, of the Navy, for his Invention of a MACHINE FOR DRAWING BOLTS IN AND OUT OF SHIPS, a Model of which is reſerved in the Society's Repoſitory, and a Plate and Deſcription are hereunto annexed.

SIR,

I SHALL be much obliged to you to lay the accompanying Model of a Machine for Drawing Bolts in and out of Ships, before the Society for the Encouragement of Arts, &c. truſting it will meet with the Society's approbation. One of your Premiums, I believe, is for a Machine for *Driving* Copper Bolts; *drawing* them in, I hope will be ſucceſsful.—I was induced to turn my thoughts to inventing a mode of Drawing Bolts out of Ships, from daily ſeeing the great difficulty of extracting them. A



Capt.n W.m Bolton's new invented Machine for drawing Bolts in and out of Ships.

Mr. Hill, I believe, has already preſented the Society with a plan for that purpoſe; but, notwithſtanding the ingenuity of his mode, I flatter myſelf mine will be found an improvement, as it can be eaſily worked, in very little room, and will generally bring the Bolt out uninjured.

I remain

Your reſpectful ſervant,

WILLIAM BOLTON.

Manchoſter-ſtreet, No. 50,
Feb. 26, 1798.

Mr. MORE.

REFERENCES *to the* PLATE *of* CAPTAIN BOLTON'S MACHINE.

A A A A A A, the frame of the Machine. B, a cylindrical tube, having a female ſcrew in the inſide. C, a wheel with teeth attached to the cylinder B. D, an endleſs ſcrew adapted to the wheel C. E, handle of the winch. F, the Bolt drawing out. G G, blocks to ſupport the frame. H, a hollow

a hollow piece of ſteel, having on its outſide a male ſcrew, whoſe threads work within the female ſcrew in the cylinder B. To this piece of ſteel the Bolt is to be rivetted. I, a ſemicircular piece of ſteel, which is to be introduced into the notches on H, when a ſimilar notch has been cut in the head of the Copper Bolt, which by this means is prevented turning in H, while drawing. K, the Bolt, as prepared to receive the Machine. L, a ſteel bar, ſomewhat ſmaller than the Bolt to be drawn, having at one end a male ſcrew, A, and at the other end another male ſcrew that fits into the female ſcrew in B. M, a ſection of a male ſcrew, having a ſquare hole larger than the Bolt. N, a Bolt with a male ſcrew at one end ready to be drawn in.

The Machine, of which a Plate is annexed, conſiſts of a frame ſupporting a cylindrical female ſcrew tube. On this tube is mounted a wheel, with teeth adapted to an endleſs ſcrew, fitted to the frame, and worked by a handle.

To draw the Bolt out.

The head of the Bolt muſt be cut off, and a hole made in the timber big enough to receive the male ſcrew H, which is put over the Bolt: a ſlit is then to be made, either by a ſaw or cold chiſſel, in the head of the Bolt, to receive the key I, and which correſponds to the ſlit in H: the Bolt head is then to be rivetted as firmly as poſſible upon H: the cylindrical tube, B, is then to be ſcrewed on, turning the whole Machine round till it can be done no longer, when the endleſs ſcrew is to be uſed. If the Machine is of a proper ſtrength, and the rivetting well done, the power is ſuch as to extract the Bolt or break it, but generally it will be drawn out uninjured.

To draw Bolts into Ships.

It will be neceſſary to have a bar, L, which I recommend to be made of ſteel, long enough to paſs from the inſide to the outſide of the ſhip, and ſomewhat ſmaller

than the Copper Bolt intended to be drawn in. This may be called a conductor. On one end ſhould be a male ſcrew, *a*; the Bolt to be drawn in ſhould be tapped at one end to receive the male ſcrew, *a*, on the conductor, and at the other end ſhould be another male ſcrew that fits into the female ſcrew in B; after which the operation is the ſame as drawing a Bolt out, and the Machine ſhould be applied accordingly. When the Bolt arrives at its deſtined place, it may be ſecured on the inſide by a nut, which is as good a way of faſtening as clinching, and much more expeditious.

This Machine, though only of the height of eighteen inches, will draw Bolts in or out of any length; for, after the Bolt has riſen to the top of the tube, it will only be neceſſary to ſcrew the Machine back, and follow up the work with blocks of timber, as repreſented in the drawing.

Note. If the upper part of the hole in H be made ſquare, larger than the round hole

hole as ſhewn at M, and the head of the Bolt rivetted into it, it will do away the neceſſity of the key, I, render the Machine leſs complicated, and ſave much time and trouble.

WILLIAM BOLTON.

PAPERS

IN

COLONIES AND TRADE.

COLONIES AND TRADE.

In conſequence of the following Communication from Mr. ALEXANDER ANDERSON, relative to the Culture of various uſeful Plants in the Botanic Garden in the Iſland of St. Vincent, the Society this Seſſion voted to him their SILVER MEDAL, and elected him a Correſponding Member; and the Catalogue of the Plants growing in that Garden, mentioned in Mr. Anderſon's Letter, is reſerved in the Society's Library.

SIR,

AS the Society for the Encouragement of Arts, Manufactures, and Commerce, countenance and encourage the introduction and cultivation of uſeful Plants in the Britiſh Colonies, it may probably be acceptable to have ſome information rela-

tive to His Majeſty's Garden in this Iſland, eſtabliſhed by General Melville, above thirty years ago; I therefore take the liberty of tranſmitting you a Catalogue of Plants in it, and the preſent ſtate of ſome of the moſt valuable, which, if you think not foreign to their views, I beg the honour of your laying them before the Society.

I am, SIR,

Your moſt humble ſervant,

ALEXANDER ANDERSON.

Botanic Garden, St. Vincent,
Jan. 24, 1798.

SAMUEL MORE, Eſq.

STATE *of ſome of the moſt valuable* PLANTS *in His Majeſty's* BOTANICAL GARDENS *in the Iſland of* St. Vincent, *December* 24, 1797.

ARTOCARPUS INCISUS.—*Otaheite Bread-Fruit.*

In June 1793, of the original plants fifty were reſerved in the garden, to yield future ſupplies

ſupplies for the different iſlands; of thoſe few were two feet high, or half an inch diameter in the ſtem; moſt of them from ſix inches to a foot in height. In October 1794 ſome began to produce fruit; in March following all of them. At preſent moſt of the trees are about thirty feet high; the ſtem two feet from the ground from three to three feet and a half in circumference.

The fruit comes out in ſucceſſion the greater part of the year; from November till March fewer than at any other time. But as there are ſix varieties of the tree and fruit in the garden, ſome kinds are loaded, whilſt there is ſcarcely any fruit on the others; ſo that ſome one of them is always in fruit. The number one tree produces is very great, often in cluſters of five or ſix, bending the lower branches to the ground. According to the different varieties, the fruit is of various ſhapes and ſizes, in weight from four to ten pounds, ſome ſmooth ſkinned, others rough or tuberculated; taken from the tree before maturity, the juice is of the colour and conſiſtence of milk, and in taſte

ſomething

ſomething ſimilar. It iſſues for more than ten minutes in a continued ſtream, and thickens into a glutinous or adheſive ſubſtance.

The fruit is in the greateſt perfection about a week before they begin to ripen: at that period it is eaſily known, from the ſkin changing to a browniſh caſt, and from ſmall granulations of the juice. When ripe it is ſoft and yellow, in ſmell and taſte like a very ripe melon: in that ſtate, hogs, dogs, and poultry, are fond of it. When half grown, boiled, it is good food for hogs and poultry. For Bread, the beſt mode of dreſſing, is baking it entire in an oven as Bread; when properly done, and laying aſide prejudices, with a little cuſtom, it is equal to, if not better than any kind of Bread, as it is lighter and very eaſy of digeſtion. Boiled, like yams, it is very good, and by many preferred to being baked. Negroes either eat it in that condition, or cut it in half, and roaſt it in the aſhes. It may be ſliced the ſame as Bread, and toaſted on a gridiron

gridiron. For a pudding, ſcarcely any thing equals it. After baking or boiling, formed into a maſs like dough, and then baked as biſcuit, it is nearly the ſame as biſcuit, and will keep as long.

From the firſt appearance of the fruit (when of the ſize of an egg), it is three months before they are full, or fit for eating. Having no formation of ſeeds, the tree produces its progeny by ſuckers from its roots, at the time it begins to yield its fruit; and a large young family ariſes, at the diſtance of three to thirty feet from the parent ſtem. For two years paſt ſeveral hundreds of them have been tranſported to the different iſlands.

Independent of its utility, the tree is one of the handſomeſt, and for ornament would be anxiouſly ſought after in any country. It is hardy, a tough wood, and reſiſts the ſevereſt guſts of wind.

Beſides the Otaheitan, Captain Bligh brought from Timor ſome plants of the Eaſt-India Bread-Fruit, two of which he left in the Garden. Although the fruit is

eſculent, yet is it far inferior to the other, and a bad ſubſtitute. It is ill-ſhaped, and of a ſoft pulpy ſubſtance; it has no ſeeds, but propagates itſelf as the former does.

The ſeed-bearing kind, in its external habit, is hardly to be diſcriminated from the true, yet in fruit differs very much from it, containing no eſculent ſubſtance but its ſeeds, in number from forty to eighty, and ſometimes one hundred; in appearance like cheſnuts: when roaſted or boiled, they are preferred, by many people, to Bread-Fruit. Negroes are very fond of them.

The fruit is nearly the ſize of the Bread-Fruit, and is covered with prickles like a hedge-hog. As the ſeeds readily vegetate, Nature has no occaſion for the puſhing up plants from the roots, as in the Bread-Fruit. Previous to the arrival of the Providence, a young plant of it was ſent to the Garden from Martinico for the true Bread-Fruit. It grows as faſt, and gives fruit as ſoon, but riſes to a larger and ſtronger tree. In the French Iſlands it is known by the name *Chataignier du Malabar*.

LAURUS

LAURUS CINNAMOMUM.—*Cinnamon*; Three Kinds.

One of them has been common in the French Iſlands for many years, and was introduced into the Garden, near thirty years ago, by Dr. Young. It is the *Laurus Cinnamomum* of Jacquin, which he found in the woods of Martinico, and conjectures to be the ſame as the Ceylon Cinnamon. Although in ſome parts it has a great affinity with the true Cinnamon, yet on the whole it ſeems eſſentially different.

The leaves have the greateſt affinity, and the greateſt part of its property ſeems concentrated in them. They ſmell and taſte ſtrong of Cinnamon, and, for culinary purpoſes, are a good ſubſtitute.

The bark of thoſe branches of the ſize and age from which the fineſt Cinnamon is obtained, poſſeſſes nothing but a rough aſtringent taſte: that from the old trunk, which is very thick, is ſometimes ſtrong of the ſpice. The thin membrane next to the

wood is pleaſant, but difficult to ſeparate from the thick brittle bark.

Whether or not this is the *Caſſia lignea*, or the true Ceylon Cinnamon degenerated through neglect, I cannot determine; be that as it will, it is no occidental plant, as it has no affinity with, or habit of, the American ſpecies. It undoubtedly has been introduced from the Eaſt into theſe Iſlands. Jacquin might naturally take it for an indigenous plant, not adverting to its propagation by birds. Birds are fond of the ſeeds, and may readily diſſeminate them in the woods: they have been inſtrumental in rendering many foreign plants common in theſe Iſlands.

From three ſmall trees, found in the Garden in 1785, one hundred trees are at preſent producing ſeeds. It is ſomething ſingular that it can only be increaſed by ſeeds, whereas the other two kinds grow as readily by layers and by cuttings as by ſeeds.

It

It is an erect handſome tree, from fifteen to twenty feet high, with compact erect branches, and thrives in any ſoil or ſituation.

The leaves are of an oval-ſpear ſhape, with three longitudinal ribs, united above the baſe *(triplinervia)*; the under ſide of a yellow colour.

The two other kinds were introduced from the Eaſt Indies by the French, in 1785 and 1786. A plant of each was ſent to the Garden in 1787. The firſt was from Martinico, by a Gentleman, then a correſpondent and fellow-labourer for the true Ceylon Cinnamon. It was four inches high, and proſpered remarkably well; ſo much ſo, that at preſent there are thirty young trees producing ſeeds, with nurſeries of ſeveral hundred young ones, excluſive of thoſe already ſent to the different iſlands. It grows erect with the former: the branches are ſhorter and more compact, forming the ſhape of a cone.

The

The leaves are oval, with three longitudinal ribs; ſometimes five are united at the baſe: the under ſide is of a ſea-green colour.

It readily grows from cuttings and layers, as it alſo does from ſeeds. From branches of three and four years old the bark is very fine. It ſeems beſt when the ſap is in greateſt plenty, or riſing, and is then eaſily peeled off: at other times it ſtrongly adheres to the wood. During the operation, the juice ſqueezed out is whitiſh, and rather inſipid. It acquires ſtrength in drying; but whether it is beſt dried in the ſun or the ſhade, I cannot determine; but ſpecimens, done both ways, accompany this Paper. The leaves are hot and biting, and taſte much of the Clove, but little of the Cinnamon.

The third ſort was alſo a ſmall plant, ſent to the Garden for the True Cinnamon, by a Gentleman in St. Lucia, in return for plants ſent him from the Garden. He obtained it from the Captain of a frigate

from

from the Iſle de France bound to St. Domingo, with a cargo of valuable plants, but put in there for refreſhments. The leaves of this kind are broad, of an oval oblong ſhape, with five diſtinct ribs united at the baſe; the under ſide a yellow green: they ſmell and taſte as thoſe of the former kind. Its bark ſeems to be the beſt of the three; and its habit, or mode of growth, differs very much from the former two. It rarely grows above eight feet high, if left to nature, but divides, near the ground, into very long ſlender branches, ſpreading horizontally: the lower ones are procumbent, but they may be trained up ſtrait. The branches, however, are always much longer, more ſlender, and with fewer ſecondary ones, than the others. It has the appearance of another ſpecies.

CARYOPHYLLUS AROMATICUS.—*Clove.*

The firſt plant was received from Martinico, at the ſame time as the Cinnamon. As it is a very tender plant while young, it

was frequently loſt when three or four feet high, and ſuppoſed out of danger, but was fortunately preſerved by layers, one of which at preſent is ſix feet high, and healthy. This, with ten other young plants, are all the Garden as yet poſſeſſes.

The leaves are ſtrong of the Clove, and retain their ſtrength after drying. For culinary intentions they are a ſubſtitute.

At what age or ſize the plant produces ſeeds, as yet I am ignorant.

Specimens of the different kinds of Barks, mentioned in the foregoing Paper, are reſerved in the Society's Repoſitories.

The

The Thanks of the Society were this Seſſion given to Mr. SIEVERS, of Bauenhoff, in Livonia, the Author of the following Paper, on the Manner of REARING AND TREATING SILKWORMS in the Northern Parts of Europe; and the Society, in conſequence of this Communication, elected him one of their Correſponding Members.

SIR,

THE principle that induced me to trouble you with this letter, will, I hope, ſerve for an apology, and gain your indulgence.

Not till late in this autumn the thirteen volumes of the Tranſactions of the Society for the Encouragement of Arts, Manufactures, and Commerce, came to my hands. I peruſed them with ſo much the more pleaſure, as I remember, while in England,

in my younger years, the firſt exiſtence and ſudden riſe of this uſeful Society, by the public ſpirit of Mr. Shipley, whoſe name was ever ſince reſpectable to me.

I dare not intrude on your time, ſo uſefully employed for the public good of your Country, to expatiate on the many articles I moſt admired, but eſpecially the encouragement of Plantations, by which the Society will be the benefactor of ages to come: yet one article ſtruck me, for its not anſwering the expectations and repeated laudable exertions of the Society; I mean, the Cultivation of Silk and the Mulberry-tree, an object ſo worthy the Society's attention.

I will venture to juſtify the trouble I am going to give you, Sir, by this long letter, in ſaying ſomething which may appear of ſome uſe on that ſcore. You will ſmile to hear a man living under the 58th degree of latitude, and ſo much to the Eaſt as beyond the Baltic, ſpeak of the Cultivation of the Mulberry-tree and rearing of Silkworms; yet I hope to win your indulgence, perhaps

your

your candid approbation of ſome of my thoughts. Many thouſands of Engliſh Nobility and Gentry travelled, rambled, even lived, in Italy and the South of France; numbers of them I have ſeen and known there; but none cared to enquire about the Silkworm, and its prodigious work: amuſements chiefly took up their time; of a few, antiquities, ſtatues, paintings, of which, be it ſaid to their honour, no nation has made ſo rich a harveſt on the hungry Italians, preying on the wealth of the Engliſh travellers.

But to come to the Silkworms.—While I ſerved, in the year 1758, in the Ruſſian Army, in Pomerania, particularly near the coaſt of the Baltic, I had the good luck, being quarter-maſter general of a diviſion, to ſhare a conſiderable corn field of a gentleman; this produced an acquaintance with the owner: having ſeen there many plantations of Mulberry-trees, of both ſorts, he told me their uſe, and ſhewed me

their produce. I requeſted ſome ſeeds of both, and the model of a ſpinning-wheel.

Some of the ſeeds were ſown at a villa near St. Peterſburgh, belonging to an uncle of mine; they always froze to the earth; yet in the following years would riſe as high as three or four feet, in ſeveral branches, and give, with a few larger trees in the green-houſe, food for three thouſand Silk-worms, which gave near a pound of ſilk. But this eſſay had no followers, and is now no more.

Another part of the Pomeranian ſeed was ſown next ſpring at my then living father's eſtate, where I now live, in Livonia, about eighty-five Engliſh miles north of Riga. The froſts took always half of the year's growth. They were planted in a couple of borders, and kept under the ſheers, then much in uſe, as formerly in England. No uſe was made of the leaves. When I retired from public life, I found no more than forty-five trees, or rather buſhes, ſtanding in one row, two feet aſunder; I tranſplanted every ſe-

cond

cond or third tree, by which I loſt three trees: I made ſucklings, and have more than a hundred low ſtandard trees by them; cuttings I never attempted, miſled by a German author, who aſſured me they would not take.

I wrote for ſome ſeeds from Berlin, of the White Mulberry, of which I had many thouſand plants: being no botaniſt, I am not ſure they are of the White, though they have leaves much more ſmooth and tender than my old trees.

The ſeedlings roſe a foot in the firſt year, but froze to the ground; the next they roſe to two feet, of which more than a foot was loſt by the next winter; ſo they did the third year: then I tranſplanted them, partly in rows in beds, one foot aſunder, others in ſundry places of light middling land. I gave many hundreds to ſeveral ladies, who, hearing of my Silkworms, were curious to have the plants. A lady near the town of Dorpat, near a hundred miles to the north-eaſt, rears already a couple of thou-

ſand Silkworms, and has a ſhawl embroidered with her own ſilk of natural colours. Thoſe planted in rows and beds were, after two years, planted for good, in different places, even in the field; of theſe, having no ſhelter, ſome have ſuffered more than thoſe which were protected by buildings or other trees.

I made no uſe of my Mulberry-leaves, till five years ago. Travelling in White Ruſſia, or to be more explicit, in the Government of Polotzk, on the borders of the River Duna, about one hundred and fifty miles to the eaſt of Riga, conſequently ſomewhat colder, I found ſome ladies ruffling cocoons, having, as they ſaid, no ſpinning-wheel; the cocoons were ſpun there the ſame ſummer. The mother of theſe ladies being from the ſouthern borders of former Poland, had brought young Mulberry-trees from thence, which I ſaw thrive very well, being ſtandard trees of above fifteen feet high, and, near the ground, of about three inches thick.

They gave me a ſheet of paper with ſome eggs: the next year I had near three thouſand worms ſpinning. A German pamphlet from Berlin ſerved me for inſtruction, and to make a ſpinning-wheel, for my Pomeranian model was loſt. I had ſuch a great call for cocoons, that, inſtead of near a pound, which I might probably have had, I got but ten ounces of Silk, taking eight or nine cocoons to a thread. I ſent ſome of the Silk to her Imperial Majeſty, of glorious memory, ſhe being a great promoter of all ſorts of induſtry. I received a moſt gracious letter of thanks from her hand: I ſent likewiſe ſome Silk to the Society of Economy at Peterſburg, whoſe Preſident, Count Anhalt, wrote to me a letter of thanks and approbation. For myſelf, I got a pair of knitted white ſilk ſtockings, having no loom for weaving in this neighbourhood.

The two following years about the ſame number were reared, though more might have been ſo. The ſucklings of my old trees tranſplanted

planted beginning to give a pretty deal of leaves, this year I expected to have had eight thouſand; but being obliged to make a journey in the beginning of May to the ſouthern parts of Ruſſia, beyond Kiovia, which journey took up the whole ſummer, the young lady I intruſted with rearing my Silkworms, full of eagerneſs to the purpoſe, expoſed the ſheets with the eggs to the ſun too ſoon: when the leaves had ſcarce begun to break, overjoyed at the prodigious number that crept out, ſhe forgot my preſcription, counted more than ſixteen thouſand at the third ſkinning; but the trees were then almoſt bare of leaves; ſhe could not reſolve to throw one half away, to ſave the other; ſo moſt of the poor animalcula died, and ſcarce two thouſand remained, which gave much ſmaller cocoons than in the former years. I am even in danger of loſing my old trees, for they ſeem weakened by being ſtripped too much. Moſt of my old trees, which are rather buſhes of about ſix, ſeven, or eight feet, branching

branching from the ground, are of the black ſort, bearing very ſmall fruit, much ſmaller than in England: but thoſe I take to be white ones, do not bear any. I ſtill take them to be ſuch, becauſe they ſuffer ſomewhat more by the froſts, and the little creatures eat their leaves more eagerly than from the others.

No inſects I ever remarked on either: the Reverend Mr. Swayne's remarking ſome earwigs, is a phænomenon I never heard of in Italy, nor this ſummer at Kiovia, nor found it in any book.

From theſe premiſes, Sir, methinks we may venture to draw the following outlines of what might be proper to come nearer to the uſeful and extenſive aim of the Society.

I. That the White Mulberry-tree is the only one that will produce Silk. The quotation, page 191, in your Tenth Volume, of Mr. Hanway's Travels, a man of known veracity, I can aſſure to be true, by what I have heard of a gentleman who lived many years at Aſtrachan, and had con-

nexions

nexions with the Armenians, who are the principal traders with Perſia and Perſian Silk, an article increaſing yearly, for the uſe of the manufactures at Moſcow. The Perſian Silkworms, as thoſe in Italy and the South of France, feed moſt certainly on the White Mulberry leaves alone. This is confirmed by the ingenious and indefatigable Mr. Arthur Young, in his Travels in the South of France and Lombardy, as quoted by Mr. Swayne, which I have read in his works; and Mr. Bertezen affirms the ſame; while what he gives as his own opinion is evidently fallacious, if not ſet forward on purpoſe to miſlead. No doubt the Worms will live on the Black, but will not thrive, nor give any other but indifferent Silk. I therefore think, that for a complete eſtabliſhment and producing Silk, this being the laudable aim of the Society, the White Mulberry alone ſhould be raiſed, uſing the Black, exiſting of old in England, for its fruit, only as a neceſſitous nouriſhment, degrading the quality and value of the Silk.

Silk. As a further proof I muſt add, that the Oragazine Silk, the beſt Europe produces, owes its excellence to the particular kind of White Mulberry-trees, of which the branches are grafted on thoſe raiſed from ſeed. I remember to have heard, and even read ſomewhere, that they get, by way of ſmuggling, the branches to France, to graft the trees in Provence, Dauphiné, and Languedoc: Premiums will bring them as certainly to England.

II. That the White Mulberry-tree will thrive moſt certainly in England and Wales, and even in Scotland as far as Edingburgh, as a middling ſtandard-tree. The Black and the White will do, though this leſs flouriſhingly, as far as the moſt northen coaſts of Scotland, perhaps not as a ſtandard-tree, but certainly as a large buſhy ſhrub, as my old trees are here. My trees, from ſucklings and ſeeds, are trained as ſmall ſtandard-trees, the ſtem or trunk only four or three feet. To judge by the latitude, the White Mulberry will thrive in Ireland as well as in England

England; but the ſeeds ſhould not be taken from France nor Italy, nor any warmer clime. I would propoſe to get them by Stetten from Pomerania, and from Berlin; nay, I have been aſſured ſome may be had from Koningſberg in Pruſſia: care muſt be taken to diſtinguiſh the two ſorts. The White one may be got too from Dreſden and Leipzig: the ſeed of the Black in England will do for the northern parts of England; but for Scotland I ſhould rather obtain them from Pomerania and Pruſſia.

III. That the ſeeds ſhould be ſown in plain but light garden-land, rather ſomewhat ſandy, without any dung whatever. The Rev. Mr. Swayne, in your Tenth Volume, gueſſes right when he attributes the loſs of his plants to the dung.

IV. That I doubt the mode of cuttings to multiply the Mulberry-tree. I will make, next ſpring, a trial in land, and in a green-houſe without heat; yet I think it a miſtake: but from Seeds, the aim being univerſal, it ſeems more eligible, eſpecially

if

if taken from a northern clime, as propoſed above.

V. That, to all thoſe that will undertake to raiſe Silkworms, an exceſſive cleanlineſs ſhould be recommended: no draught of air, no ſmoke, qualm, damp wapour, or exhalation whatever, ſhould come near them; no ſickly perſon approach them.

VI. That no ſun-ſhine, but only a temperate or broken light, ſhould come upon them; the heat of the room ſhould be between twelve and fifteen of Reaumur: airing more than once, eſpecially in the morning, is neceſſary. The room ſhould have ſhutters, to ſecure them from the effect of thunder and lightning; conſequently the bringing them into the air, as propoſed by the Rev. Mr. Swayne, I dare not adopt; beſides, the carrying the apparatus into the garden, and back into the houſe, is an unneceſſary labour, requiring hands. The apparatus is really a good one, reſembling ſome I have ſeen formerly in Italy, and this laſt ſummer beyond Kiovia, at two eſtates

of

of Field-Marſhal Count Raſoumouzky, who has Mulberry plantations, and got this ſummer about twenty pounds of pretty good Silk.

VII. That the rearing of Silkworms will take no labourer from the field, nor from any manufacture: it will employ only an elderly woman and a couple of children, of twelve, thirteen, or fourteen years of age, the gathering of the leaves excepted, which will employ one lad of fifteen; all theſe will rear thirty thouſand Worms, or more, in the term of ſix or ſeven weeks, producing ten pounds of Silk.

VIII. That for the Mulberry-tree no good land is required, but ſuch as will grow the moſt common trees on dry land; nay, I will venture to aſſert, they will grow on Blackheath, on Hounſlow-heath, on Finchley Common, and even on the barren Marlborough Downs. To theſe hints I muſt add, for the further encouragement of induſtry, that I found, this ſummer, at Kiovia, a poor taylor, a native

native of Upper Sileſia, who having a ſmall houſe overagainſt the Mulberry-Garden planted by Peter the Great, and having ſeen the rearing of Silkworms in his native country, began three years ago to rear ſome with the leaves of that Garden. Laſt year he delivered twenty-five pounds of Silk to the Director of the Imperial Garden there, who paid him, by order of the Empreſs, ten rubles a pound. I viſited him as a man of deſert: I found his houſe, about twenty feet ſquare, partitioned into four ſmall rooms; in the corner of one of theſe I found a dozen ſacks, of about three buſhels each, filled with as large and fine cocoons as I have ſeen in Italy, and much finer than my own; of theſe this induſtrious man hoped to get thirty pounds of Silk. Except the men and boys he employed to gather the leaves, he had for his work to take care of his Worms, whoſe number he rated to be near a hundred thouſand, no more help than his wife, an elderly woman, and three children, of twelve, thirteen, and fourteen years of age.

As another proof how encouragement raiſed induſtry in a ſimilar object, I muſt add, that in the Pruſſian dominions Mulberry-trees were planted by order of Frederick William, father to Frederick II. A few hundreds of pounds of Silk were made yearly. This laſt King neglected the object in the firſt twelve years of his reign; the years 1750, 1751, and 1752, produced together no more than one hundred and fifty pounds. Count Hertzberg got the care of it. Though taken up with miniſterial affairs, he found the object ſo intereſting, encouraged the ſame with ſuch zeal, gave even medals out of his own pocket, that an incredible augmentation enſued. In the year 1794, when he died, fourteen thouſand pounds of Silk were delivered into the Berlin manufacture, proved to be Pruſſian Silk. Great Britain and Ireland would outdo them very ſoon, if ſteps were taken to procure Mulberry ſeeds and plantations, and that the known public ſpirit of the Nation would turn its attention

to

to that object, and make it a national one.

As a third and laſt proof, permit me, Sir, to add, that the late Empreſs, hearing that ſome Mulberry-trees, planted by Peter the Great, on an Iſland in the Wolga, near Czaritzin, were grown to a great height, and augmented by nature, ſhe placed there a Colony of Ruſſians, to the number of four hundred males (the place called Achtouba); gave them ten years exemption from impoſts, after which they were to pay their capitation and impoſts in Silk, at ten rubles per pound. The firſt Ribbon of the newly inſtituted military Order of St. George, was of that produce; and though the ſame was coarſe, ſhe ſaid, ſmiling, ſhe never wore a finer to her mind. From the Silkworms produce, give me leave, Sir, to ſay a few words of a Plant which ſeems to be akin to them; it is the *Aſclepias Syriaca*, mentioned in Miller's, Mawe's, and Abercrombie's Dictionaries, as a perennial plant in England: I found it

this ſummer in an apothecary's garden in Kiovia; was ſurpriſed to find its produce ſo much reſembling the Silk; and that in Upper Sileſia manufacturers exiſt that cultivate this plant, and ſpinning its ſort of Silk with Cotton, produce a Silky Stuff. According to a calculation I have ſeen, half an acre will produce, in the third year, the value of ninety rix-dollars, and ſo on. Here I ſhould conclude; but, with a heart full of grateful feelings to a happy country, where I paſſed ſeven of my younger years, being attached to the Ruſſian embaſſy, I muſt aſk you a few queſtions, that may perhaps prove not unworthy the attention of your truly patriotic Society.

Is the Pinus Cembra, or Siberian Mountain Pine, or Siberian Cedar, known to you? It is a very fine tree in appearance, and very valuable by its fruit and timber; I find it both in Miller's, Mawe's, and Abercrombie's Dictionaries; and methinks I have ſeen it at Chelſea, under the name of a Cedar. The fruit grows in their Pine-

apples,

apples, in numerous ſmall ſweet kernels: it is offered as a delicacy in every citizen's houſe in Ruſſia; but thoſe kernels will not do for vegetation, becauſe they are dried in the oven to get them out of the apple. This tree would be an excellent acquiſition, for Scotland in general, and for the Engliſh parks in particular. Its needles are longer and darker than thoſe of the famous Weymouth Pine: its home is on the mountains that ſeparate Siberia from Caſan, or rather Europe from Aſia.

Is the Archangel Larch-tree known to you? All the men of war built at Archangel are of that timber. I have ſome of eight years old in my garden that are fifteen feet high; the three laſt years they roſe ten feet. I am curious to know from whence came the ſeeds of Larch planted in England and in Scotland. I do not believe them at home in Scotland, becauſe in Ruſſia, in the Government of Olou, formerly of Noogrod, the Larch-tree begins to grow with the ſixty-third degree of latitude: near Arch-

angel, and on the borders of the White Sea, I have ſeen Larch-trees that would ſerve for maſts. Should the Engliſh plantations be from thence or America, or from the Alps?

Why do not the Society offer a Premium for the cultivation of the Weymouth Pine in particular, that tree being in ſuch repute for its ſpeedy growth; furniſhing even maſts to the navy? Why not for ſeveral Timber and Walnut Trees, eſpecially the Black with round, and the other with the oblong fruit? Why not for a number of other American trees and underwood, eſpecially the *Pſeudo-Aca*, ſo renowned in Germany for its rapid growth as ſuch?

All theſe are well known in England, as I ſee by liſts of the gardeners who ſell plants; I know them by three claſſical works in German; one publiſhed at Gottingen, 1789, by Mr. Wangenheim, who ſerved as Captain in the Hanoverian troops all the American war; the other, of the late Profeſſor Du Roy, who directed for

many years the extenſive and ſucceſsful plantations of Mr. Veltheim, between Brurvis and Magdeburg; third, of Mr. Burgſdorff, at Berlin, who has extenſive plantations near that town, and carries on a great trade with American and German ſeeds. Theſe works would be worth your peruſal, if you are acquainted with the German language.

To compenſate with ſomething the perhaps too tedious length of this letter, I muſt tell you, Sir, how the public ſpirit of your reſpectful Society turned to the advantage of a diſtant nation. The Society's ſpirited exertions, and publiſhed Premiums, gave the firſt idea and riſe to the Free Economical Society at St. Peterſburg, inſtituted in the year 1766. The late Empreſs, reading the Engliſh news-papers, bid one to explain to her many of the Society's Premiums, with which ſhe was ſo much pleaſed, that ſoon after a Society of fifteen diſtinguiſhed perſons united, with her approbation, who choſe ſoon after many mem-

bers more, of whom I had the honour to be of the firſt, being then Governor of Great Noogrod. The Society exiſts, and has promoted many very uſeful objects; but not being in ſuch affluent circumſtances, by the aid of the public, their exertions fall ſhort of thoſe of the Engliſh Society.

This letter proves the due regard with which I am,

SIR,

Your moſt obedient Servant,

J. SIEVERS.

SAMUEL MORE, Eſq.

Secretary to the Society for the Encouragement of Arts, Manufactures, and Commerce, at London.

REWARDS

REWARDS

BESTOWED BY THE

SOCIETY,

From October, 1797,

To June, 1798.

REWARDS

BESTOWED IN

AGRICULTURE.

Claſs 34. TO JOHN SNEYD, of Belmont, in Staffordſhire, Eſq. for having planted eleven thouſand Larch-trees in the years 1794 and 1795, the GOLD MEDAL. See page 117.

To JOHN PHILLIPS, of Ely, Eſq. for Obſervations on planting Oſiers, the SILVER MEDAL. See page 129.

Claſs 101. To Mr. THOMAS JONES, of Fiſh-Sreet-Hill, for having raiſed three thouſand and forty plants of the Rheum Palmatum, or True Rhubarb, THIRTY GUINEAS. See page 213.

Culture

Claſs 90. To Mr. JOHN EXTER, of Pilton, in Devonſhire, *for his* account of the Comparative Culture of Turneps, the SILVER MEDAL and TEN GUINEAS. See page 182.

Claſs 107. To JOHN PEART, Eſq. of Settle, in Craven, Yorkſhire, for having improved fifty-ſix acres, three roods, twenty-three poles, of Land lying waſte, the SILVER MEDAL, and TWENTY GUINEAS. See page 232.

IN POLITE ARTS.

Claſs 173. To the RIGHT HONOURABLE LORD GRANTHAM, for a Drawing; View of Fountain's Abbey, Yorkſhire; the GOLD MEDAL.

Claſs 177. To Mr. CHARLES HENRY PARRY, for a Drawing; Portrait of his Siſter in the character

ter of a little Gleaner; the GOLD MEDAL.

Claſs 178. To Miſs ELIZABETH WALLS, for a Drawing; Samuel, after Sir Joſhua Reynolds; the SILVER MEDAL.

Claſs 179. To Miſs ELIZA BARRETT, for a Drawing; View of Richmond Bridge; the GOLD MEDAL.

Claſs 180. To Miſs MARY ANN MASTER, for a Drawing; Portraits of a Family; the SILVER MEDAL.

To Miſs COLLET, for a Drawing of Birds, after Nature; the SILVER MEDAL.

Claſs 182. To Mr. WILLIAM FRANCIS ENGLEHEART, for a Drawing of Outlines; Sampſon ſlaying Philiſtines; the LESSER SILVER PALLET.

Claſs 184. To Mr. WILLIAM WESTALL, for a Drawing; View

of the Cottage in Hyde Park; the LESSER SILVER PALLET.

To Mr. BENJAMIN COOPER, junior, for a Drawing of Temple-Bar, the LESSER SILVER PALLET.

To Miſs FRANCES TALBOT, for a Painting after *Andrea del Sarto*; ſubject, a Holy Family; the LESSER SILVER PALLET.

To Miſs KNIGHT, for Works executed in Tow and Leather, the SILVER MEDAL.

To Mr. CHARLES NESBITT, for a Print of St. Nicholas' Church, in Newcaſtle-upon-Tyne, cut on wood, the LESSER SILVER PALLET.

To Mr. TIMOTHY SHELDRAKE, for his Diſſertation on an improved Proceſs in Oil-Painting, the GREATER SILVER PALLET. See page 279.

IN

IN MANUFACTURES.

To Miſs DUKE, for Samples of Needle-work, one of which remains with the Society for the inſpection of the Public, the SILVER MEDAL.

IN MECHANICKS.

To Mr. GEORGE JEE, for his improved Mangle, the SILVER MEDAL. See a Plate and Deſcription, page 303.

To Mr. JOHN PRIOR, for his improved Eſcapement for Watches, THIRTY GUINEAS. See a Plate and Deſcription, page 306.

To CAPTAIN WILLIAM BOLTON, of His Majeſty's Navy, for his invention of a Machine for Drawing Bolts in and out

out of Ships, the GOLD MEDAL. See page 318.

IN COLONIES AND TRADE.

To Mr. ALEXANDER ANDERSON, for promoting the Views of the Society, by reeſtabliſhing the Botanic Garden in the Iſland of St. Vincent, the SILVER MEDAL. See page 327.

PRESENTS

PRESENTS

RECEIVED BY THE

SOCIETY,

SINCE THE PUBLICATION OF THE FIFTEENTH VOLUME OF THESE TRANSACTIONS.

With the Names of the Donors.

BOOKS.

The Royal Society.

THE Second Part of the 86th, the First and Second Parts of the 87th, and the First Part of the 88th Volume of the Philosophical Transactions.

The Society of Antiquaries.

An Account of the Cathedral Church of Exeter, illustrative of the Plans, Elevations, and Sections, of that Building, with Engravings of the Cathedral.

THE LINNEAN SOCIETY.

The Third and Fourth Volumes of the Tranſactions of the Linnean Society.

THO. SKIP DYOT BUCKNALL, Eſq.

The Orchardiſt, a Pamphlet, extracted from the 11th, 12th, 13th, and 14th Volumes of theſe Tranſactions.

Mr. J. SHEEVE.

A Treatiſe on Tillage-Land.

VALENTINE GREEN, Eſq.

A Supplemental Account of the finding the Body of King John at Worceſter.

Mr. J. JOLLIE.

The Fourth Part of the Hiſtory of Cumberland.

A. HUNTER, M. D.

Two Pamphlets; the one entitled the Outlines of Agriculture; the other, an Illuſtration of the Analogy between Vegetable and Animal Parturition.

J. A.

J. A. KNIGHT, Esq.

A Treatise on the Culture of the Apple and Pear.

BOARD OF AGRICULTURE.

A General View of the Agriculture of the County of Clackmannan, and some of the adjacent parishes, in the Counties of Perth and Stirling;

A General View of the Agriculture of the County of Kinross;

A General View of the Agriculture of the County of Stirling; and

A General View of the Agriculture of the County of Glamorgan.

Mr. WYATT.

The Seventh Volume, and the 43d, 44th, 45th, 46th, 47th, and 49th Numbers of the Repertory of Arts.

Dr. ANDERSON, of Madras.

Three Numbers of a Periodical Work, entitled the Phœnix, for January, February,

and March, 1797; and two Sheets, entitled, The Correſpondence of Dr. Anderſon for the latter end of the Year 1796; all printed at Madras.

Dr. ANDERSON, of Edinburgh.

Three Octavo Volumes; the firſt entitled Eſſays relative to Rural Affairs and Agriculture; the ſecond, a Practical Treatiſe on Draining Bogs, Swampy Grounds, &c. and the third, a Practical Treatiſe on Peat Moſs.

Mr. CHAPMAN.

A Quarto Volume, entitled, Obſervations on Canal Navigation.

CHARLES HATCHET, Eſq.

A Quarto Pamphlet, entitled, the Coal-Viewer and Engine-Builder's Practical Companion, by Mr. John Curr.

HENRY EMLYN, Eſq. of Windſor.

A Folio Volume, entitled a Propoſition for a New Order of Architecture.

ROBERT

ROBERT BEATSON, Eſq.

A Pamphlet, entitled, an Eſſay on the Comparative Advantages of Vertical and Horizontal Windmills.

J. BARRY, Eſq. R. A.

A Quarto Pamphlet, entitled a Letter to the Dilettanti Society.

PRINTS.

J. T. DILLON, Eſq.

The Mariner's Compaſs embelliſhed.

Mr. C. NESBITT.

A large Print, cut on Wood, of St. Nicholas's Church, in Newcaſtle upon Tyne.

Mr. ROBERT CLARKE.

Three Views of the Iron Bridge over the River Wear, at Sunderland, in the County of Durham, one of which Prints is dedicated to the Society.

CHEMISTRY.

ARTHUR WILLIAM DEVIS, Eſq.

A ſmall Inſtrument called a Nehrea, and uſed by the Natives of Hindooſtan for ſcarifying the Heads of Poppies. See page 272.

POLITE ARTS.

Miſs KNIGHT.

A Buſt of the late Earl of Chatham, formed of Tow and Leather.

MANUFACTURES.

Miſs DUKE.

A Piece of Needle-work.

MECHANICKS.

Mr. GEORGE JEE.

Two Models of a Mangle; and a Spring Vent for Beer or Wine Caſks.

Mr. BULLOCK.

A pair of Rack Bolts for Cabinets.

Mr. RICKMAN.

A Model of a Flying Proa, as deſcribed in the Account of Lord Anſon's Voyage.

A CATALOGUE

OF THE

MODELS AND MACHINES

Received since the Publication of the Fifteenth Volume of the Society's Transactions, with the Numbers as they are arranged, in the Class to which they belong.

MECHANICKS. CLASS IV.

No. CLXXVII. A MODEL of a Machine for Drawing Bolts both into and out of Ships, by Capt. Bolton, R. N. for which he had the Gold Medal, a Bounty. See Page 318.

CLXXVIII. A Model of an Improved Mangle, presented by Mr.

George Jee, for which he had a Bounty, the Silver Medal. See page 303.

CLXXIX. A Vent Screw for a Beer Barrel, preſented by Mr. George Jee. See page 374.

CLXXX. A Pair of Rack Bolts, for a Cabinet, preſented by Mr. William Bullock. See page 374.

CLXXXI. An improved or new-invented Eſcapement, by Mr. John Prior, for which he had a Bounty of Thirty Guineas. See page 306.

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Eden, Sir Frederick Morton, Bart. F. A. S.
Erſkine, Sir William, Bart. M. P.
Earle, Henry, Eſq. *Gower-ſtreet*
Eaton, Rev. Stephen, A. M. and F. A. S. *St. Ann's, Soho*
P Eaton, Peter, Eſq. *Weſtford, Eſſex*
Echardt, Francis Frederick, Eſq. *Whiteland Houſe, Chelſea*
P Eckerſall, John, Eſq. *Burford Houſe, near Dorking, Surry*
Eccles, the Rev. Allan Harriſon, *Bow, Middleſex*
P Eccleſton, Thomas, Eſq. *Scareſbrick, Lancaſhire*
Edwards, John, Eſq. *Warnford-court*
Edwards, Bryan, Eſq. M. P. F. R. and A. S. *St. James's ſtreet*
Edwards, Samuel, Eſq. *Stamford, Lincolnſhire*
Edwards, Mr. John, *at Mr. Wood's, No.* 35, *Broad-ſtreet buildings*
Ellill, John, Eſq. *Queen-ſtreet, Cheapſide*
Elliott, John, Eſq. *Pimlico*
P Errington, John, Eſq. *Stanhope-ſtreet, May-fair*
Eſdaile, Joſh, Eſq. *Albyns, Eſſex*
*††Ewer, Samuel, Eſq. F. L. S. *Hackney*
P Ewbank, Andrew, Eſq. *Upper Groſvenor-ſtreet*

††Fife,

F.

††Fife, James, Earl of, F. R. and A. S.
††Falmouth, George Evelyn Lord Viſcount
Finch, Honourable Captain William, *Albury, near Guilford*
Fludyer, Sir Samuel, Bart. *Baker-ſtreet, Mancheſter-ſquare*
P Fletcher, Sir Henry, Bart. M. P. *Southampton-row, Bloomſbury*
††Ford, Sir Francis, Bart. *Queen-Ann-ſtreet Weſt*
Farquhar, Sir Walter, Bart. *Conduit-ſtreet*
Fairman, William, Eſq. *Lynſted, Kent*
Farmer, Samuel, Eſq. *Beckenham, Kent*
Farell, Rev. Charles, *Bungton, near Kimbolton, Huntingdonſhire*
Fearon, Henry, Eſq. *John-ſtreet, Adelphi*
P Felton, Samuel, Eſq. F. R. and A. S. *Carburton-ſtreet, Fitzroy-ſquare*
P Fermor, William, Eſq.
††Ferris, Samuel, M. D. F. R. and A. S. *Harpur-ſtreet*
Feuilleteau, William, Eſq. F. R. and A. S. *Charlotte-ſtreet, Rathbone-place*
Filmer, Beverſham, Eſq. *King's-road*
Fitzherbert, Thomas, Eſq. *Roehampton, Surry*
Fleetwood, Robert, Eſq. *Ely-place*.
Fletcher, Mr. Thomas, *Bridge-ſtreet, Blackfriars*

Fludyer,

Fludyer, George, Eſq. M. P.

Forde, the Rev. Brownlow, D. D. *Margaret-ſtreet, Cavendiſh-ſquare*

Fordyce, George, M. D. F. R. S. *Eſſex-ſtreet, Strand*

Forſyth, William, Eſq. F. A. S. *Kenſington*

Foulſton, Mr. John, *No.* 18, *Frith-ſtreet, Soho*

Foudrinier, Henry, Eſq. *Lombard-ſtreet*

Fowle, Dr. William, *Cecil-ſtreet, Strand*

††Fowler, David Burton, Eſq. *Fig-tree-court, Temple*

P Franco, Jacob, Eſq. *Gerard's-Croſs*

Frankland, William, Eſq. *Cavendiſh-ſquare*

Franklin, Captain William, *Beaufort-buildings, Strand*

Fraſer, James, Eſq. *Golden-ſquare*

Fraſer, Simon, Eſq. *King's-arms-yard, Coleman-ſtreet*

Fraſer, William, Eſq. F. R. S. *Queen-ſquare, Holborn*

Fraſer, Mr. David, *Great Pulteney-ſtreet*

French, Mr. George, ſeedſman, *Southwark*

Frend, Mr. George, *Abroad*

Froſt, Mr. Thomas, *Goldſmith-ſtreet*

Fry, Edmund, Eſq. *Type-ſtreet, Chiſwell-ſtreet*

Fry, Mr. Joſeph Storrs, *Briſtol*

Fry, Mr. Henry, *Middle Moorfields*

Fullarton, Colonel William, M. P. and F. R. S. *Parliament-ſtreet*

Fulton, Henry, Eſq. *Watling-ſtreet*

G.

Gordon, Alexander, Duke of, K. T. and F. R. S.
* Groſvenor, Richard Earl, F. R. S.
Glencairn, Earl of
Glaſgow, George Earl of, F. R. and A. S.
P Gallaway, Arundell Lord Viſcount, M. P. and K. B.
P Greville, Right Hon. Charles, *M. P.* and *F. R. S.*
Greville, the Honourable Robert, F. R. and A. S.
Grey, Sir Henry, Bart. *Howick, Northumberland*
††Gaſcoigne, Sir Thomas, Bart. F. A. S. *Partington, in the County of York*
Green, Major-General Sir William, Bart. F. R. and A. S. *Chandos-ſtreet, Cavendiſh-ſquare*
P Geary, Sir William, Bart. M. P. *Oxen Heath, Kent*
Galloway, James, Eſq. *Gower-ſtreet*
Gape, Joſeph, Eſq. *Bridge-ſtreet, Weſtminſter*
Garland, Nathaniel, Eſq. *Epſom and Conduit-ſtreet*
Garnett, David, Eſq. *Baſinghall-ſtreet*
Garnet, Robert, Eſq. *Fenchurch-ſtreet*
Garrett, Daniel, Eſq. *Portſmouth*
Garthſhore, Maxwell, M. D. F. R. and A. S. *St. Martin's lane*
Garthſhore, William, Eſq. M. P. *Mancheſter-ſquare*
Gibbes, George Smith, M. A. *Magdalen College, Oxford*
Gilbert, Mr. Henry, *Holborn*
Glanvill, Mr. Edward, *Broad Sanctuary, Weſtminſter*
Gipps,

P Godfchall, William Man, Eſq. F. R. and A. S.
Godwin, James, Eſq. *Wingfield, Berks*
Golden, Robert, Eſq. *Red-lion-ſtreet*
Goldthwaite, Thomas, jun. Eſq.
Goodwyn, Henry, jun. Eſq. *Eaſt Smithfield*
Goodchild, Mr. Thomas, *Tooley-ſtreet*
Goodhew, William, Eſq. *Deptford*
Gotobed, John, Eſq. *Norfolk-ſtreet, Strand*
Gould, the Rev. William, D. D. F. R. S. *Staple-ford-Abbot, Eſſex*
Gordon, Edward, Eſq. *Bromley, Middleſex*
Goſling, Francis, Eſq. *Fleet-ſtreet*
Goſling, William, Eſq. F. A. S. *Fleet-ſtreet*
Graham, George, Eſq.
Graham, Aaron, Eſq. F. R. S. *Great Ruſſel-ſtreet*
Grant, General James, *Sackville-ſtreet*
Græme, General David, *Lower Seymour-ſtreet*
Grant Major John, *Hill-ſtreet, Berkley-ſquare*
††Grant, John, Eſq. *Fleet-ſtreet*
Grant, Peter, Eſq. *Fort Auguſtus, North Britain*
P††Gray, Walker, Eſq. *London-ſtreet*
Gray, John, Eſq. *Somerſet-place*
P Green, Rupert, Eſq. *Percy-ſtreet, Rathbone-place*
Green, Mr. Joſeph, *Tower-ſtreet*
Green, Mr. William, *Deptford*
††Greene, Thomas, Eſq. F. A. S. *Gray's-inn*
Greene, Joſeph, Eſq. *New Baſinghall-ſtreet*
Greenwood, Abraham, Eſq. *Staining-lane*
P Gregory, Robert, Eſq. *Berner's-ſtreet*

Grenfell, William, Eſq. *Copper-Office, Thames-ſtreet*
Gower, Charles, Eſq. *Edmonton*
Greſley, Rev. William
Grieve, John, M. D. F. R. and A. S. *Norfolk-ſtreet, Strand*
Griffin, Mr. John, *Steward-ſtreet, Spitalfields*
P††Griffith, Edward, Eſq. of *Caernarvon*
Griffith, John, Eſq. *Queen-ſquare, Bloomſbury*
Groote, George William, Eſq. *Dean-ſtreet, Soho*
Groſvenor, Richard Erle Drax, Eſq. M. P. *Berkeley-ſtreet, Manchester-ſquare*
P Grote, George, Eſq. *Threadneedle-ſtreet*
Groves. John, Eſq. *Sloane-ſtreet, Knightſbridge*
††Grubb, John, Eſq. *Lincoln's-inn-fields*
Gubbins, Mr. James, *Surry-ſtreet*
Gwillim, Henry, Eſq. *Boſwell-court, Carey-ſtreet*

H.

††*Hardwicke, Philip Earl of, F. R. and A. S.
Hawke, Martin, Lord
Heathfield, Francis Auguſtus Lord
Haſlang, His Excellency, Count
Harcourt, Honourable General William
Honeywood, Sir John, Bart. M. P. *Bedford-ſquare*
Hume, Sir Abraham, Bart. F. R. S. *Wormleybury*

Hanmer,

Hanmer, Sir Thomas, Bart. *Hanmer, Flintſhire*
Heathcote, Sir John, *Edenſor, Langton Hall, Staffordſhire*
Harley, Rt. Honourable Thomas, Alderman, M. P. *Alderſgate-ſtreet*
Hope, the Rt. Honourable Brigadier-General John
Hope, the Honourable Lieutenant-Colonel Charles
Herne, Sir William, Alderman
Hay, Major-General Alexander
Hadley, Mr. Nathaniel, *Long-acre*
Hall, Mr. Abraham, *Aldermanbury*
Hall, Mr. Luke, *Gutter-lane, Cheapſide*
Hall, Phinehas, Eſq. *Hans-place, Sloane-ſtreet*
Hallet, William, Eſq. *Farringdon, Berks*
Hamilton, Rev. Anthony, D. D. F. R. and A. S. *Saville-row*
Hamilton, William, Eſq. *Blackheath*
Hamilton, William, M. D. *Old Broad-ſtreet*
Hammett, John, Eſq. *Lombard-ſtreet*
††Hammond, William Parker, Eſq.
Handaſyde, Mr. Gilbert, *Green-walk, Southwark*
Hankey, Joſeph, Eſq. *Poplar*
Hanmer, Job, Eſq. *Holbrook-Hall, Sudbury*
Hardcaſtle, Joſeph, Eſq. *Duck's-foot-lane*
Harding, John, Eſq. *College-ſtreet, Weſtminſter*
P††Harman, Jeremiah, Eſq. *Princes-ſtreet, Lothbury*
Harper, Robert John, Eſq. *Britiſh Muſeum*
Harriſon, Richardſon, Eſq. *Freern-Barnet, Middleſex*
Harriſon, Thomas, Eſq. *Wolverton, Bucks*

Harrop, Joſeph, Eſq. *Great Marlborough-ſtreet*
Hart, Mr. Henry, *Lamb's-conduit-ſtreet*
Harwood, William, Eſq. *Hanwell-park*
Haſſal, Charles, Eſq. *Eaſtwood, Pembrokeſhire*
• Haſtings, Warren, Eſq. *Park-lane*
Haſwall, Mr. Alexander, *Wigmore-ſtreet*
Hawkins, John, Eſq. F. R. S.
Hay, Robert, Eſq. *Portland-place*
Hay, James, Eſq. *Great Portland-ſtreet*
Hay, Colonel Patrick, *Upper Norton-ſtreet*
Hayter, Mr. Jonathan, *Milk-ſtreet, Cheapſide*
Hayward, Mr. Richard, *Piccadilly*
††Heaviſide, Richard, Eſq. *Somerſet-ſtreet, Portman-ſquare*
Heaviſide, John, Eſq. *George-ſtreet, Hanover-ſquare*
P††Hebert, James, Eſq. *Great Portland-ſtreet*
Hele, John, Eſq. *Charlotte-ſtreet, Rathbone-place*
† Henderſon, John, Eſq. LL. B. and F. A. S. *Terrace, Adelphi*
Hepworth, John, Eſq. *York*
Heron, Patrick, Eſq. M. P. *Cavendiſh-ſquare*
Hewlet, Mr. William, *Strand*
Hewetſon, John, Eſq. *Tower-hill*
Hewitt, Mr. Henry Thomas, *Keene's-row, Walworth*
Hicks, Mr. John, *Brighton*
Higgins, Matthew, Eſq. *Conduit-ſtreet*
Hilton, John, Eſq. *Ironmonger-lane, Cheapſide*
Hill, Richard, Eſq. *Plymouth, Glamorganſhire*
Hill, Edward, Eſq. *Albion-ſtreet, Blackfriars-road*

P Hoare,

P Hoare, Charles, Eſq. F. A. S. *Chapel-ſtreet, Groſvenor-place*
Hoare, Jonathan, Eſq. *Stoke Newington*
Hobbs, Mr. Joſeph, *Margaret-ſtreet, Cavendiſh-ſquare*
P Hobſon, William, Eſq.
Hobſon, George, Eſq.
Hodgſon, Mr. George, *Lambeth-marſh*
Hood, Alexander, Eſq. *Royal Navy*
Hodgkinſon, Mr. Sampſon, *Snow-hill*
P Holder, James, Eſq. *Aſh-park*
P Holland, Henry, Eſq. F. A. S. *Sloane-place, Knightſbridge*
Holland, Mr. Richard, *Half-moon-ſtreet, Piccadilly*
Holland, Mr. George, *High Holborn*
Holliday, John, Eſq. F. R. S. *Great Ormond-ſtreet*
Hollis, Thomas Brand, Eſq. F. R. and A. S. *Cheſterfield-ſtreet*
Holcombe, Rev. William, *Canon of St. David's*
Holmes, Mr. John, *Whitefriars*
Holme, Mr. William, *Baſs-court, Thames-ſtreet*
Home, Patrick, Eſq. M. P. *Gower-ſtreet*
Homfray, Samuel, Eſq. *Mirtry Tidvike, Glamorganſhire*
Honeybourne, Mr. Robert, *Stourbridge*
Honeywood, Filmer, Eſq. M. P. *Charles-ſtreet, Berkeley-ſquare*
Honyman, Captain Robert, M. P. *Royal Navy*
Hooper, Thomas, Eſq. *Panty Goitre, Monmouthſhire*

Horner, Thomas, Eſq. *Mell's Park, near Frome, Somerſetſhire*
Horton, Mr. William, *Newgate-ſtreet*
Hotham, John, Eſq. *Middle Temple-lane*
P Houghton, William, Eſq. *Conduit-ſtreet*
Howard, Barnard, Eſq. *Faruham, Suffolk*
Howell, Mr. John, *Vine-ſtreet, Piccadilly*
P Hudſon, Vanſittart, Eſq. *Temple*
Hughes, Rev. Edward, *Greenfield-hall, Flintſhire*
Hulme, William, Eſq. *Twydale, Kent*
† Hunt, Rowland, Eſq.
Hunter, John, Eſq. M. P. *Bedford-ſquare*
Hurt, Charles, Eſq. *Wirkſworth, Derbyſhire*
Huſſey, William, Eſq. *Saliſbury*
Hyde, John, Eſq.

I.

P Ilcheſter, Henry Thomas Earl of
Johnſtone, the Honourable Lieutenant-Colonel Cochrane, M. P.
††Ingilby, Sir John, Bart. M. P. F. R. and A. S.
Johnſton, Sir William, Bt. *Queen ſtreet, May-fair*
P Jackſon, William, Eſq. *Dowgate-wharf*
††Jacob, Joſeph, Eſq. *Greek-ſtreet, Soho*
Jardin, Mr. John, *Throgmorton-ſtreet*
Jeffery, George, Eſq. *ditto*
Jefferys, Thomas, Eſq. *Cockſpur-ſtreet*

Jefferys,

Jefferys, Mr. George, *Brick-lane, Old-ſtreet*
Jefferys, Mr. George
P Jenkins, Thomas, Eſq. *Rome*
P Jenour, Joſhua, Eſq. *Fleet-ſtreet*
Jervoiſe, Jervoiſe Clark, Eſq. M. P. *Hanover-ſquare*
Jeudwine, Thomas, Eſq. *Baſinghall-ſtreet*
Ince, William, Eſq. *Broad-ſtreet, Carnaby-market*
Inglis, Hugh, Eſq. *Bedford-row*
Innes, Hugh, Eſq. *Taviſtock-ſtreet, Bedford-ſquare*
Johnſon, Alexander, LL. and M. D. *Portland-ſtreet*
†‡Johnſon, John, Eſq.
Johnſon, John, jun. Eſq. *Berner's-ſtreet*
Johnſon, Mr, James, *Bryanſtone-ſtreet*
Johnſton, Alexander, Eſq. *Drury-lane*
Jones, Edward, Eſq. *Weprehall, Flintſhire*
Jones, John, Eſq.
Jones, John, Eſq. *Frankley, Wiltſhire*
Jones, Mr. Francis, *Groſvenor-ſtreet*
Jones, Mr. John, *Charlotte-ſtreet, Manſion-houſe*
Jones, Griffith, Eſq. *Auſtin-friars*
Jourdan, Major Edward, *Harley-ſtreet*
Ives, Jeremiah, Eſq. *St. Clement's, Norwich*
Ives, Jeremiah, Eſq. *Cotton, near Norwich*
Jupp, Richard, Eſq. *King's-road*

K.

* Kinnoull, Robert Drummond Hay, Earl of
Kinnaird, George Lord, F. R. and A. S.
Keith, George Lord, *Cavendiſh-ſquare*, M. P.
Kaye, Rev. Sir Richard, Bart. Dean of Lincoln, LL. D. F. R. and A. S.
Kappen, Mr. William, *Southampton-ſtreet, Strand*
Karr, Andrew Ramſay, Eſq. *Wimpole-ſtreet*
Keighley, James, Eſq. *Hertford-ſtreet, May-fair*
††Kendrick, Edward, Eſq. *King-ſtreet, Covent-garden*
Kent, Nathaniel, Eſq. *Fulham, Middleſex*
††Keyſall, John, Eſq. *Queen's-ſquare, Holborn*
Kidman, Mr. John, *Fleet-ſtreet*
King, the Rev. Richard, *Worthin, Shropſhire*
King, Mr. Thomas, jun. *Great Queen-ſtreet*
Kingſton, John, Eſq. *Stratford-place*
Kirkby, William, Eſq. *Exchequer office, Temple*
Knill, John, Eſq. *Gray's-inn*
Knight, Mr. George, *Cliffe, near Rocheſter*
Knubley, Richard, Eſq. *Bath*

L.

Loughborough, Alexander Lord, F. R. and A. S. Lord High Chancellor of Great-Britain
P Leeds, Francis Duke of, K. G. F. R. and A. S.
P Landſdown,

P Lanſdowne, the Moſt Noble the Marquis of
* Leiceſter, George Earl of, F. R. S. and Preſident of the Society of Antiquaries
**Liverpool, Charles Earl of, V. P.
P Lewiſham, George Lord Viſcount, F. R. and A. S. and F. L. S.
Leiceſter, Sir John, Bart. M. P. *Piccadilly*
P Laurent, Sir Francis, Kt.
* Lewes, Sir Watkin, Kt. V. P. *Parliament-ſtreet*
P††Lambert, Charles, Eſq. F. A. S. *Temple*
Lambert, Aylmer Bourke, Eſq F. R. and A. S, and F. L. S. *Lower Groſvenor-ſtreet*
Lambert, Anthony, Eſq. *George-ſtreet, Hanover-ſquare*
Landman, Iſaac, Eſq. *Royal Academy, Woolwich*
P Larkins, William, F. R. and A. S. Eſq. *Blackheath-point*
Law, Thomas, Eſq. *Abroad*
Lawrence, Richard, Eſq. *Mincing-lane*
Lawrence, Richard James, Eſq.
Leach, Mr. Edward, *Cotton Manufactory, Tottenham-court-road*
Lefevre, Charles Shaw, Eſq. M. P. *Bedford-ſquare*
††Leake, William, Eſq. *Parliament-ſtreet*
Leatham, William, Eſq. *Chatham-ſquare, Blackfriars*
Leatham, Iſaac, Eſq. *Burton-le-ſtreet, Yorkſhire*
Lee, William, Eſq. *Alton, Herts*
Legh, George John, Eſq. *Pall-mall*
††Leigh, John, Eſq. *Bedford-ſquare*

Lettſom,

Lettſom, John Coakley, M.D. F. R. and A. S. *Baſinghall-ſtreet*

Levy, Moſes Iſaac, Eſq. F. A. S. *Piccadilly*

††Lewis, John, Eſq. *Welbeck-ſtreet*

††Lewis, Percival, Eſq. *Lincoln's-inn*

††Lewis, William, Eſq. F. L. S. *Holborn*

Lewis, Thomas, Eſq. *Great James-ſtreet, Bedford-row*

Lillingſtone, A. Spoone, Eſq.

Liptrap, John, Eſq. F. A. and L. S. *Whitechapel-road*

Llewellyn, John, Eſq. *Penllengare, Glamorgan-ſhire*

P Lloyd, William, Eſq.

* Lock, William, Eſq. *Golden-ſquare*

P Long, Samuel, Eſq. M. P. *Hill-ſtreet, Berkeley-ſquare*

Longman, Mr. Thomas, *Cheapſide*

P Loveden, Edward Loveden, Eſq. M. P.

Lowndes, William, Eſq. *Scotland-yard, Whitehall*

Lowten, Thomas, Eſq. *Temple*

Lowth, Rev. Robert, *George-ſtreet, Hanover-ſquare*

Loxdale, Thomas, Eſq. *Braidley-Lodge, near Bilſon, Staffordſhire*

††Lumley, William, Eſq. *Penton-ſtreet, Iſlington*

† Lynd, James, Eſq. *Beaufort-buildings*

M.

* Macclesfield, George Earl of

* Morton, George Earl of, F. R. and A. S.

P Malmeſbury,

P Malmeſbury, James Lord, K. B. and LL. D.
Milford, Richard Lord, M. P.
*P Monckton, the Honourable Edward, M. P. *Portland-place*
Middleton, Sir Charles, Bart. M. P. *Hertford-ſtreet, May-fair*
Moleſworth, Sir William, Bart. *Pencarrow, Cornwall*
* Mac Pherſon, Sir John, Bart. M. P.
Morſhead, Sir John, Bart. M. P. *Hampton-court*
Monro, Sir Hugh, Bart. *Gloceſter-place, Portman-ſquare*
P Mackreth, Sir Robert, M. P. *Cork-ſtreet*
Macleod, Major-General Norman, M. P. F. R. S. *St. Alban's ſtreet*
Macdonald, John, M. D. *King-ſtreet, Soho*
M'Leod, John, Eſq. *Argyll-ſtreet*
††Mac George, William, Eſq. *New Bond-ſtreet*
Macmurdo, Mr. Edward Longdon, *Bread-ſtreet*
P Macnamara, John, Eſq.
Mac Dougal, Mr. James, *No.* 418, *Oxford-ſtreet*
Mac Konochie, A. Lochart, Eſq. *Suffolk-ſtreet, Charing-croſs*
Magens, Dorrien, Eſq. *Cavendiſh-ſquare*
**Maitland, Ebenezer, Eſq. *Coleman-ſtreet*
Malcolm, Mr. William, *Stockwell*
Malcolm, Mr. Jacob, *ditto*
Malo, Mr. Joſeph, *Pavement, Moorfields*
Malton, James, Eſq. *Norton-ſtreet, Portland-place*
Manley, John George, Eſq. *Braziers, Oxon*

Mainwaring

Mainwaring, Mr. Thomas, *Strand*
Marriott, John Martin, Eſq. *Lamb's-conduit-ſtreet*
Marſh, Mr. William, *South-ſtreet, Groſvenor-ſquare*
Marſhall, Andrew, M. D. *Thavies-inn*
Martin, James, Eſq. M. P. *Downing-ſtreet*
Martin, Matthew, Eſq. *Cleveland-row*
Martyn, the Reverend Thomas, B. D. F. R. S. F. L. S. *Profeſſor of Botany, Cambridge, Frith-ſtreet, Soho*
Martin, Thomas, Eſq. *Great Marlborough-ſtreet*
††Maſkall, Samuel, Eſq. *Mitre-court, Milk-ſtreet*
Maſon, Miles, Eſq. *Finſbury-ſquare*
Matthews, Edward, Eſq. *Sol's-row, Tottenham-court-road*
Mayor, Mr. Joſeph, *Little Moorfields*
Mayhew, John, Eſq. *Broad-ſtreet, Carnaby-market*
Meares, John, Eſq. *Park-lane*
Meheux, John, Eſq.
* Melville, General Robert, F. R. and A. S. *Brewer-ſtreet*
† Meredith, Mr. William, *Harley-place*
Meredith, George, Eſq. *Harley-place*
Mercer, George, Eſq. *Queen-Ann-ſtreet Weſt*
Merry, William, Eſq. *Gower-ſtreet*
Metcalfe, Chriſtopher Barton, Eſq. *Weſt-Ham*
Meux, Richard, jun. Eſq. *Liquor-pond-ſtreet*
††Meyrick, John, Eſq. F. A. S. *Great George-ſtreet*
Meyrick, Owen Patland, Eſq. *Bodalgan, Angleſey*
††Michell, Mathew, Eſq. *Beaufort-buildings, Strand*
Middleton, Mr. John, *Paradiſe-row, Lambeth*

Midford,

Midford, George, M. D. *Weſt-ſquare, Lambeth*
††Mildred, Daniel, Eſq. *White-hart-court, Grace-church-ſtreet*
Miles, Mr. John, *Birmingham*
Millikin, Mr. Hallay Benſon, *Whitechapel*
Millington, Langford, Eſq. *Tooting, and Berners-ſtreet*
Millington, Mr. Thomas, *Golden-ſquare*
P Mills, Abraham, Eſq. *Fence-houſe, Macclesfield*
Mills, Mr. George, *Old Swan-ſtairs*
Mills, Samuel, Eſq. *Finſbury-place*
Miller, John, Eſq. *Red-lion-ſquare*
Milnes, Richard, Slater, Eſq. M. P. *Foiſton, near Ferrybridge, Yorkſhire*
Miniſh, Mr. William, *Whitechapel*
Miſt, Mr. Henry, *Long-acre*
Mitchel, Michael, Eſq. *Walthamſtow*
Mitchel, William, Eſq. M. P. *Devonſhire-place*
Mitford, Robert, Eſq. *Great Portland-ſtreet*
Montreſor, John, Eſq. *Harley-ſtreet*
Montolieu, Lewis, Eſq. F. A. S.
* Montagu, Mrs. Elizabeth, *Portman-ſquare*
Morley, William, Eſq. *New Broad-ſtreet*
Morſe, Leonard, Eſq. F. R. S. and S. A. *Great George-ſtreet, Weſtminſter*
Morris, Mr. William, *Whitcombe-ſtreet*
Mortimer, Charles, Eſq. *Conduit-ſtreet*
Moſely, Walter Michael, Eſq. *near Worceſter*
Moſer, Mr. John, *Frith-ſtreet, Soho*
Mulcaſter, Colonel Frederick George, *Portſmouth*

Munn, Daniel Rolfe, Eſq. *Hammerſmith*
Murrey, John, M.D. *Bedford-ſtreet, Bedford-ſquare*

N.

P Norfolk, Charles Duke of, Preſident, F.R. and A.S.
**Northumberland, Hugh, Duke of, V.P. K.G. F.R. and A.S.
††Northampton, Charles Earl of
Northeſk, William Earl of
Naghton, Thomas, M.D.
Naſh, Mr. Thomas, *Worceſter*
Naſh, John, Eſq. *Dover-ſtreet*
Neale, Mr. Thomas, jun. *Beaumont-ſtreet, Cavendiſh-ſquare*
Newbury, Benjamin, Eſq. *Ely-place*
Newcombe, Mr. William, *Great Queen-ſtreet, Weſtminſter*
Newnham, the Rev. William Moore, *Boyle-ſtreet, Saville-row*
P Newton, Robert, Eſq. *Norton-houſe, Berks*
P Newton, Andrew, Eſq. *Cecil-ſtreet, Strand*
Newton, Mr. John, *Lamb's-conduit-ſtreet*
De Neyva, Joſeph da Cunha Para, Eſq. *Artillery-place*
Nichols, Mr. Deputy, *Red Lion-paſſage, Fleet-ſtreet*
Nicolay, Frederick, jun. Eſq. *St. James's Palace*
Nicol, Mr. George, *Pall-mall*

Noble, William, Eſq. *Pall-mall*
Nouaille, Peter, Eſq. *Greatneſs, Kent*
Noireterre, Mademoiſelle de, *Paris*
Norman, Robert, Eſq. *Cannon-ſtreet*
Nutting, Mr. Joſeph, *King-ſtreet, Covent-garden*

O.

P Oſſory, John Earl of Upper, F. R. and A. S.
Ogilvie, Scroope, Eſq. *Pall-mall*
Ogle, Mr. Thomas, *Abroad*
Oldham, John, Eſq. *Sackville-ſtreet*
Oliver, the Rev. John, *Croombs-hill, Blackheath*
Ord, John, Eſq. F. R. and A. S. *Lincoln's-inn-fields*
Orrell, Thomas, Eſq. *Winſley-ſtreet, Oxford-ſtreet*

P.

**Portland, William Henry Duke of, V. P. K. G. F. R. and A. S.
P Plymouth, Otho Earl of, F. R. and A. S.
**Pitt, the Right Honourable William, M. P.
Pelham, the Right Honourable Thomas, M. P. *Stratton-ſtreet*
* Puſey, Honourable Philip, *Upper Brook-ſtreet*
Pulteney, Sir William, Bart. M. P. *Bath-houſe*
Packer, Mr. William, *King-ſtreet, Soho*
Page, Francis, Eſq. M. P. *Aſhton, Oxfordſhire*
Page, Francis, Eſq. *Newbury, Berks*

Page,

Page, Frederick, Eſq. *Serjeant's-inn, Fleet-ſtreet*
Page, Mr. John, *High Holborn*
P Paice, Mr. Joſeph, *Bread-ſtreet-hill*
Pakenham, Captain Edward, R. N.
Papworth, Mr. Thomas, *Great Portland-ſtreet*
Pariſh, John, Eſq. F. A. S. *Gibraltar*
Park, Mr. James, *Baldwin's gardens*
Parkes, Mr. Richard, *Broad-ſtreet, Bloomſbury*
Parkins, Mr. William, *Adelphi Wharf*
Parker, David, Eſq. *King's Mews*
Parker, Mr. William, *Fleet-ſtreet*
††Parker, Mr. Samuel, *Bridge-ſtreet, Blackfriars*
Parker, Mr. Thomas, *Fleet-ſtreet*
Parker, Samuel Walker, Eſq. *White-Lead Works, Iſlington*
Parkinſon, Mr. Thomas, *Bloomſbury-market*
Parnell, Mr. Hugh, *Church-ſtreet, Spitalfields*
Parry, Mr. Edward, *Newgate-ſtreet*
Parry, William, Eſq. *Norton-hall, Wiltſhire*
Parſon, Pearce, Eſq. *Doctor's-commons*
Paterſon, William, Eſq. *Devonſhire-place*
Paxton, William, Eſq. *Queen-ſquare, Holborn*
Paxton, Mr. Chriſtopher, *Alderſgate-ſtreet*
††Payne, Samuel, Eſq. *Vauxhall*
Peacock, Mr. Lewis, *Lincoln's-inn-fields*
Pearce, William, Eſq. *Craig's-court*
††Pearſon, James, Eſq. *Baſinghall-ſtreet*
Peel, Robert, Eſq. M. P. *Bury, Lancaſhire*
Peirſon, Peter, Eſq. F. R. and A. S. *Inner Temple*
Penruddock, Charles, Eſq. *Soho-ſquare*

Penton,

Penton, Mr. George, *New-ſtreet-ſquare, Shoe-lane*
P Perin, William Philip, Eſq. F. R. and A. S. *Bloomſbury-ſquare*
Perring, John, Eſq. Alderman, *New Broad-ſtreet*
Perry, John, Eſq. *Blackwall*
Perry, James, Eſq. *Lancaſter-court, Strand*
Perrott, George, Eſq. *Craycombe-houſe, Worceſter-ſhire*
Petrie, William, Eſq. M. P. F. R. and A. S. *Hertford-ſtreet, May-fair*
Petrie, John, Eſq. M. P. *Portland-place*
P Pettiward, Roger, Eſq. *St. James's ſtreet*
Phillips, John, Eſq. *Ely*
Phillips, Mr. Samuel, *St. George's-road, Blackfriars-bridge*
Phillips, Mr. Richard, *St. Paul's Church-yard*
Phillipſon, Thomas, Eſq. *Harpur-ſtreet*
Pickering, Mr. Robert
Pigou, William, Eſq. *Portland-place*
Pitt, William Morton, Eſq. M. P. and F. R. S. *Arlington-ſtreet*
P††Pitt, Thomas, Eſq. V. P. F. A. S. *Wimpole-ſtreet*
Planta, Joſeph, Eſq. F. R. S. *Britiſh Muſeum*
Pollen, George Auguſtus, Eſq. M. P. *Hill Houſe, Leatherhead*
Pollett, Mr. Robert, *North Weald, near Epping*
Pontopidan, Charles, Eſq. *Copenhagen*
Pope, William, Eſq. *Hillingdon, Middleſex*
P Portman, Edward Berkeley, Eſq. *Bryanſton, near Blandford, Dorſet*

Porter, William, Eſq. *Copthall-court, Throgmorton-ſtreet*
Pote, Edward Ephraim, Eſq. *Eaſt-Indies*
P Potter, Chriſtopher, Eſq. *Abroad*
Potter, George, Eſq. *Charing-croſs*
Pourcin, Mr. Joſeph, *No.* 143, *Tottenham-court-road*
Powell, David, jun. Eſq. *Little St. Helen's*
Powell, John Clark, Eſq. *ditto*
††Powell, Arthur Anneſly, Eſq. *Devonſhire-place*
Powlett, William Powlett, Eſq. M.P. *Sambourne, near Stockbridge*
Powney, Henry, Eſq. *Lamb's-conduit-ſtreet*
P Prado, Samuel, Eſq. *Robert-ſtreet, Adelphi*
Praed, William, Eſq. M. P. *Tyringham, Bucks*
Pratt, John, Eſq. *Lower Brook-ſtreet*
Preſton, Mr. Thomas, *Strand*
Pricket, Thomas, Eſq. *Wanſtead, Eſſex*
Pringle, Mark, Eſq. M. P. *Conduit-ſtreet*
Prinſep, John, Eſq. *Pall-mall*
Pryce, Benjamin, Eſq. *Saliſbury*
Pryce, Thomas, Eſq. *Devonſhire-ſtreet, Queen's-ſquare*
Pugh, David Heron, Eſq. *King-ſtreet, Cheapſide*

Q.

* Queenſberry, William Duke of, K. T.

R.

**Richmond, Charles Duke of, V. P. K. G. F. R. and A. S.
**Radnor, Jacob Earl of, V. P. F. R. and A. S.
**Romney, Charles Lord, V. P. and F. R. S.
* Roſebery, Niel Earl of, K. T.
††P Rancliffe, Thomas Boothby Lord, V. P. M. P. F. R. and A. S.
Ruvo, Ettore Carrafa, Count
* Ryder, the Right Honourable Dudley, M. P.
††Ridley, Sir Matthew White, Bart. M. P. *Portland-place*
††Raby, Alexander, Eſq. *Steel-yard, and All-hallows-lane*
Roe, John, Eſq. *Angel-court, Throgmorton-ſtreet*
P Ramey, John, Eſq. *Ormesby, Norfolk*
††Ramſbottom, John, Eſq. *Alderſgate-ſtreet*
††Ramſbottom, Richard, Eſq. *ditto*
Raſtrick, Mr. John, *Morpeth*
Rawlinſon, Abraham, Eſq. *Lancaſter*
Rawlinſon, Thomas, Eſq. *ditto*
Reaſton, Francis Buſhell, Eſq. *Temple*
††Read, John, Eſq. *Great James-ſtreet, Bedford-row*
Read, Colonel Henry, *Lower Seymour-ſtreet*
Rehe, Mr. Thomas, *Shoe-lane*
Rees, the Rev. Abraham, D. D. F. R. S. *Hackney*

Reeves, John, Eſq. F. R. and A. S. *Cecil-ſtreet, Strand*

Reeves, Mr. William, *Strand*

Reid, Mr. John, *Fan-ſtreet, Alderſgate-ſtreet*

† Reid, Andrew, Eſq. *Whetſtone, Middleſex*

Reid, John, Eſq. *Bedford-ſquare*

††Remington, John, Eſq. *Milk-ſtreet, Cheapſide*

Rennie, Mr. John, *New-road, Blackfriars*

Reynolds, Major Thomas Vincent

Riddell, Colonel John, *Weymouth-ſtreet*

Rigg, John, jun. Eſq. *London-ſtreet*

Ring, Thomas, Eſq. *Reading, Berks*

Ritſon, Thomas, Eſq. *Ingram-court, Fenchurch-ſtreet*

Rivier, Philip, Eſq. *Lawrence-Poultney-lane*

Roberts, Rev. William Hancock, D. D. *Loughborough Houſe*

Robertſon, William, M. D. *Golden-ſquare*

Robertſon, James, M. D. F. R. S. *Ibbetſon's Hotel*

Robinſon, Samuel Wakefield, Eſq. *Vere-ſtreet, Cavendiſh-ſquare*

††Robinſon, George, Eſq. *Harpur-ſtreet*

P Robinſon, Thomas, Eſq. *Vere-ſtreet, Cavendiſh-ſquare*

Robins, Mr. John, *Warwick-ſtreet*

Robley, John, Eſq. *Stoke Newington*

Robſon, Mr. James, *New Bond-ſtreet*

Rodes, Cornelius Heathcote, Eſq. *Balborough, Derbyſhire*

Rondeau, James, Eſq. *No. 3, Shorter's-court, Throgmorton-ſtreet*

Roope,

Roope, John, Eſq. *Yarmouth*
Roſe, George, Eſq. M. P. *Old Palace-yard*
Roſe, George Henry, Eſq. *ditto*
P Roſs, Colonel Patrick, F. R. and A. S. *Harley-ſtreet*
Rowcroft, Thomas, Eſq. *Lawrence-Poultney-lane*
Rowntree, Mr. Thomas, *Great Surry-ſtreet, Black-friars*
Rucker, Daniel Henry, Eſq. *Broad-ſtreet, City*
Ruddle, Francis, Eſq. *Queen's-ſquare, Bloomsbury*
Ruffo, Monſieur Vincent, *Naples*
Ruggles, Thomas, Eſq. F. A. and L. S. *Clare, Suffolk*
Runqueſt, Peter Andrew, Eſq. *Bury-court, St. Mary Axe*
P Ruſſel, Jeſſe, Eſq. *Goodman's-fields*
Ruſſel, John, Eſq. R. A. *Newman-ſtreet*
Ruſſel, William, Eſq. *Berwick, Northumberland*

S.

* Shrewſbury, Charles Earl of
P Suffolk, John Earl of
P Shafteſbury, Anthony Earl of, F. R. and A. S.
Scarborough, George Auguſtus Earl of
P Stanhope, Charles Earl of, F. R. S.
St. Vincent, John Earl
P Scarſdale, Nathaniel Lord
Stuart, the Honourable Charles, M. P.

P St. Aubyn, Sir John, Bart. F. R. and A. S. *Stratford-place*

Sheffield, Sir John, Bart. *Portland-place*

Smith, Sir John, Bart. F. R. and A. S. *Sydling, Dorſetſhire*

††Sinclair, Sir John, Bart. M. P. F. R. and A. S. *Whitehall*

††Staunton, Sir George Leonard, Bart. LL. D. F. R. and L. S. *Devonſhire-ſtreet*

Stephens, Sir Philip, Bart. *M. P. F. R. and A. S.*

††Smith, Sir Sidney, Kt. Capt. R. N. Commander Grand Croſs of the Order of the Sword

††Smith, Major-General Edward

St. Barbe, John, Eſq. *Seething-lane*

Sadler, Jonathan, Eſq. *King's-arms-yard, Coleman-ſtreet*

Salte, William, Eſq. *Poultry*

Sanders, John, Eſq. *Mortlake, Surry*

Sargeaunt, Mr. John, *Great Queen-ſtreet*

Satterthwaite, Mr. John, *Mincing-lane*

Savage, Thomas, M. D. *Conduit-ſtreet*

Savage, Mr. James, *Great Queen-ſtreet*

Saunders, Thomas, Eſq. *Haydon-ſquare, Minories*

Saunders, Thomas, Eſq. *James-ſtreet, Golden-ſquare*

Saunders, Mr. George, F. A. S. *Oxford-ſtreet*

P Saunders, Mr. Edward Grey, *Edgware-road*

Saxon, Mr. Samuel, *Parliament-ſtreet*

Sayer, Thomas, Eſq. *Bow, Middleſex*

Sayer, Henry J. Eſq. *Lincoln's-inn*

Schaw, Lieutenant-Colonel John B. *Queen-Anne-ſtreet Eaſt*

Scholey,

Scholey, Mr. George, *Old Swan-ſtairs*
P Scott, David, Eſq. *Devonſhire-place*
Scott, Robert, Eſq. *Groſvenor-ſquare*
Scott, Hugh, Eſq. *Harley-ſtreet, Cavendiſh-ſquare*
Scott, Mr. Thomas, *Ludgate-hill*
† Seale, Mr. David, *Peckham*
Seddon, Mr. Thomas, *Alderſgate-ſtreet*
P Selby, Henry Collingwood, Eſq. *Twickenham-common, Middleſex*
Serra, Iſaac, Eſq. *King's-road, Gray's-inn-lane*
Sewell, Mr. John, *Cornhill*
Sewell, the Reverend George, *Byfleet, near Ripley, Surry*
Sewell, Mr. George, *Landon-ſtreet, Fitzroy-ſquare*
Shadwell, Henry, Eſq. *Beverley, Yorkſhire*
P Shakeſpeare, Mr. George, *Oxford-ſtreet*
††Sheldon, Thomas, Eſq. F. R. S. *Tottenham-court-road*
Shelley, Samuel, Eſq. *George-ſtreet, Hanover-ſquare*
††Sheplee, Richard, Eſq. *Horſlydown*
Sherſon, Robert, Eſq. F. A. S. *New Bridge-ſtreet, Blackfriars*
Shiffner, Godin, Eſq. *Weymouth-ſtreet, Portland-place*
P Shipley, Mr. William, Gent. *Maidſtone, Kent*
P Shore, Samuel, Eſq. *Norton-hall, Derbyſhire*
P Shore, Samuel, jun. Eſq. *Lincoln's-inn*
Sibley, Joſeph, Eſq. *Market-ſtreet, Herts*
Simpſon, Mr. Thomas, *Chelſea Water-works*
Simpken, Mr. Charles, *Oxford-ſtreet*

Simpkin,

Simpkin, Mr. Thomas, *Strand*
Skinner, Thomas, Esq. Alderman, *Aldersgate-ſtreet*
Skinner, William, Esq. *Finſbury-ſquare*
P Skottow, Nicholas, Esq. *Berners-ſtreet*
Slade, John, Esq. *Hammerſmith*
Slade, Thomas Moore, Esq. *Chatham*
Smart, Mr. George, *Camden Town*
Smirnove, Rev. James, *Upper Mary-le-bone-ſtreet*
• Smith, George, Esq.
† Smith, John Spencer, Esq. *Abroad*
††Smith, William, Esq. *Lombard-ſtreet*
Smith, William, Esq M. P. *Park-ſtreet*
Smith, Mr. John, *Lad-lane*
††Smith, Joſhua, Esq. M. P. *Great George-ſtreet, Weſtminſter*
Smith, Simmons Smith Joſhua, Esq. *Batterſea, and Lamb's-conduit-ſtreet*
Smith, Mr. Dedrick. *Gerard-ſtreet*
• Smith, Mr. Nathan, *Knightſbridge, Brighthelmſtone*
Smith, Captain William, of the Royal Navy
Smith, Henry, Esq. *Draper's-hall*
Smith, Mr. Richard, *Crown-court, Cheapſide*
Smith, Mr. Edward, *Broad-ſtreet, City*
††Smith, George, Esq. *Lombard-ſtreet*
Smith, Mr. John James, *Shoe-lane*
Smith, Eaglesfield, Esq. *Great Queen-ſtreet*
Soane, John, Esq. F. A. S. *Lincoln's-inn-fields*
Soley, Mr. Thomas Apreece, *Bloomſbury*
Songa, Anthony, Esq.
Sparks, Mr. Robert, *St. John's ſtreet*

Sparkes,

Sparkes, Joſeph, Eſq. *Red-lion-ſquare*
Sparrow, Robert, Eſq. *Portland-place*
Spiller, James, Eſq. *Guilford-ſtreet*
Spilſbury, Mr. William, *Snow-hill*
Spilſbury, Mr. Charles, *ditto*
Splitgerber, Mr. John Chriſtian, *Church-court, Walbrook*
Splitgerber, Mr. Frederick, *ditto*
Spottiſwood, John, Eſq. *Sackville-ſtreet*
Spurrier, Mr. Iſaac, *Greek-ſtreet, Soho*
Standen, the Reverend J. H. Rector of Murſton, *Kent*
Stanhope, Walter Spencer, Eſq. *Upper Groſvenor-ſtreet*
Stanley George, Eſq. *Ponſonby-hall, Cumberland*
Stanley, John, Eſq. *Berners-ſtreet*
Steell, Robert, Eſq. *Finſbury-ſquare*
Steer, Charles, Eſq. *Church-ſtreet, Spitalfields*
P††Steers, John William, Eſq. F. A. S. *Inner Temple*
P Steers, James, Eſq. *Middle-Temple*
*††Stephens, Francis, Eſq. F. R and A. S. V P. Commiſſioner of the Victuall ng Office, *Adelphi*
Stephens, James, Eſq. *Camerton-houſe, near Bath*
Stevenſon, Thomas, M. D.
Stevenſon, James, M. D. *Lower John-ſtreet, Golden-ſquare*
Stiff, Mr. Thomas, *New-ſtreet, Covent-garden*
Still, Mr. Samuel Stanford, *Bankſide, Southwark*
Stockwell, John, Eſq. *Crutched-friars*

Stockdale,

Stockdale, Mr. Jeremiah, *Holborn*
Stodart, William, Eſq.
Stone, Mr. Thomas
††Stone, William, Eſq. *Old Ford, Middleſex*
Stonard, Nathaniel, Eſq. *Bow, Middleſex*
Storey, Robert, Eſq. *Bedford-ſquare*
Strachan, James, Eſq. *Mincing-lane*
††Strange, James, Eſq. M. P. *Hertford-ſtreet, Mayfair*
Stratton, George, Eſq. *Devonſhire-place*
Street, Mr. James Wallis
Stuart, Andrew, Eſq. M. P. and F. A. S. *Lower Groſvenor-ſtreet*
Style, Robert, jun. Eſq. *Datchet, near Windſor*
Suart, George, Eſq. *Lancaſter*
P Sulivan, Richard Joſeph, Eſq. M. P. F. R. and A. S.
Sulivan, John, Eſq. M. P. *Arlington-ſtreet*
Sumner, George, Eſq. M. P. *George-ſtreet, Weſtminſter*
P Supple, Richard Brook, Eſq. F. R. S.
Sutherland, Alexander Hendras, Eſq. *New Broad-ſtreet, City*
Sykes, Mark Maſterman, Eſq.
Symmons, John, Eſq. F. R. A. S. and L. S. *Paddington-houſe*
Syms, George William, Eſq. *Southampton-buildings*

T.

**Thanet, Sackville Earl of
Tabrum, Mr. Robert, *Gracechurch-ſtreet*
Taitt, William, Eſq. *Cardiff*
P Talbot, Thomas Manſel, Eſq. *Penrie-caſtle, Glamorganſhire*
Tanner, William, Eſq. *Monmouth and Queenhithe*
††Tate, William, Eſq. *Pimlico*
Taylor, William, Eſq M. P.
Taylor, William, Eſq. *Charlotte-ſtreet, Bedford-ſquare*
Taylor, John, Eſq. *Hatton-garden*
Taylor, Mr. Joſiah, *Holborn*
P Teixiera, Abraham David, Eſq. *Mincing-lane*
Tekell, John, Eſq. *Lamb's-buildings, Temple*
Templer, James, Eſq. *Stover-lodge, Devon*
Thomas, David, Eſq. *Pay Office, Horſe Guards*
Thomſon, the Rev. Robert, D. D. *Kenſington*
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INDEX.

A.

	Page
ACORNS, premiums offered for	4
AGRICULTURE, Papers in	115
Premiums in	4
ALDER, premiums for	16
ANDERSON, Alexander, Dr. Silver Medal to	324
ANNATTO, premium for	106
ARABLE LAND, premium for aſcertaining the parts of	37
ARTOCARPUS INCISUS, Otaheite Bread Fruit, preſent ſtate of, in St. Vincent	325
ASH, premiums for	17

B.

BARILLA, premium offered for	52
BAR-IRON, premium for fine	63
BATH, Marquis of, plantations by	120
Number of trees planted by	121
State of the land	123
BEANS and WHEAT, premiums for	29
adjudged for	177
An account of the management of a crop of	148
Drilling expence of	150

BEANS, comparative ſtatement of the expence of Broad-caſt, with that of Drilling 151
Account of land drilled with 177
BHAUGULPORE COTTON, premium for 105
BLACK DYE on Cotton, premium for 68
Obſervations on 290
BLIGHTS, premiums for preventing 25
Premiums for taking off ill effects of 26
BOLTS, deſcription of a machine for drawing in and out of ſhips 319
Premium for driving 87
BOLTON, Capt. William, the Gold Medal to 318
BORER, inſect ſo called, premium for deſtroying 101
BOTANIC GARDEN, premium for 103
BRACKISH WATER, premium for purifying 54
BREAD FRUIT, premiums for 98
BROWNE, Mr. his letter on manure 268
Thanks to ibid.

C.

CANDIDATES, for planting, what to certify 23
when to appear 109
CANDLES, premium for preparing cheap 57
CARLISLE, Rev. Mr. certificate ſigned by 119
CARYOPHILUS AROMATICUS, account of the 334
CATERPILLARS. See Fly on Hops
CHEMISTRY, &c. premiums in 52
Papers in 263
CHESNUTS, premiums for 8
CHIMNEYS, premium for cleanſing 90

CINNAMON, premium for 96
three kinds, ſtate of in St. Vincent 330
CLAPHAM, John, certificate ſigned 243
CLOVER, propoſal for converting into manure 270
CLOTH from Hop-Stalks, premium for 82
CLOVES, premiums for 97
ſtate of in St. Vincent 334
COCHINEAL, premium for 107
COLONIES, Britiſh, premiums for the advantage of 95
COLOUR, how to be conſidered by a painter 284
COLOURING, harmony of, how produced, according to Sir Joſhua Reynolds 283
CONDITIONS, to Polite Arts 78
General 110
CORN, premium for harveſting in wet weather 35
Premium for a machine for reaping 46
CRAVEN, lands in, how employed 260

D.

DAVIS, Thomas, Eſq. Thanks to 120
DEVIS, A. W. Eſq. Thanks to 272
DRAWING, premium for 73
DRAWINGS, honorary premiums for 71
of outlines 74
Landſcapes 74
Hiſtorical 75
DRY ROT, premium for preventing 62

E.

EAST-INDIES, premiums for ſettlements in 105
EAST-INDIA Bread-fruit, ſome account of 328

ELM, premiums for 19
EXTER, John, Mr. Silver Medal and Ten Guineas to 182

F.

FEATHERS, premium for cleaning 58
FIR, Silver, premiums for 13
FLY on Hops, premium for deſtroying 48
on Sheep, premium for preventing effects of 49
FORDYCE, Sir William, his eſtimate of the annual amount of the importation of Rhubarb 214
FRESH WATER, premium for preſerving 53

G.

GARDENS, Botanical, in St. Vincent, ſtate of ſome of the moſt valuable plants in 325
GLAZING, without lead, premium for 67
GRUBS, premiums for deſtroying 47
GUNPOWDER Mills, premium for preſerving 92

H.

HAY, premiums for making in wet weather 35
HARPER, Henry, Mr. Silver Medal to 147
Thanks to 197
HEATHCOTE, Henry, Mr. certificate ſigned by 171
HOLDEN, George, certificate ſigned 240, 248, 257

J.

JEE, George, Mr. Silver Medal to 303
JONES, Thomas, Mr. premium to 213
number of rhubarb plants he is poſſeſſed of 228
IRON, preſerving, premium for 68

K.

KALI, for Barilla, premiums for 100

L.

LAWD, gaining from the ſea, premium for 43
LAND lying waſte, premium for improving 39
LARCH, premiums for planting 11
Premium for, adjudged 117
Age for planting 118
LAURUS CINNAMONUM, account of the 330
LIME, effect of, loſt on certain land 122

M.

MACHINE for raiſing coals, &c. premium for 88
Water, premium for 89
MANGLE, invented by Mr. Jee, deſcription of the 305
MANUFACTURES, premiums for encouraging 81
MANURE, letter on forming 268
MANURES, premiums for 41

MECHANICKS, premiums for 86
Papers in 303
MILL, pariſh or family, premium for 87
Stones, premium for finding 93
MOORS, premium for improving 42
MULBERRY-TREE White, the only one that will produce ſilk 347
will thrive moſt certainly in England and Wales 349
Seeds of, ſhould be ſown in plain but *light garden-land* 350
no good land required for the growth of 352

N.

NATURAL HISTORY, premiums for 77
NEHREA, an inſtrument ſo called 272
NUTMEGS, premiums for 95

O.

OAKS, premiums for raiſing 5
Method of raiſing 6
OAK TIMBER in compaſs forms, premiums for 7
OIL, painting in, diſſertation on 279
OIL, premium for refining 57
OPIUM, premium for 69
Machine for obtaining 272
Obſervations on the manner of collecting in India 273

OPIUM, where prepared 273
obtained from the Papaver Somniferum 274
ORCHARDS, premiums for 20
OSIERS, premiums for 15
Letter on planting 129
a ſpecies of the ſalix 130
varieties of mentioned 130, 131, &c.
new kind of 135
Autumn the moſt proper ſeaſon for planting 143
OTAHEITE BREAD-FRUIT, account of the 325

P.

PAINT, premium for baſis of 64
Premium for red 65
PAINTING, in the Venetian manner, obſervations on 279
PAPER from raw vegetables, premiums for 83
PARSNEPS, premiums for 34
PASSENGERS, premium for preſerving 91
PEART, John, Eſq. premium to 232
PHILLIPS, John, Eſq. Silver Medal to 129
PIGMENT RED. See Paint
PLANTATIONS. See Bath
on what ſoil made 121
PLANTS, in the Iſland of St. Vincent, ſtate of 325
POLITE ARTS, premiums for promoting 71
Paper, in 277
POPPY, the cultivation of, for the preparation of Opium 274
Seeds, their uſes 275

Porpoises, premiums for taking 84
Oil from 85
Potatoes, for feeding, premium for 31
Communication on the culture of 197
Comparative value of 200
Value and uſe of, for feeding ſtock 205
Do not exhauſt the land more than turnips 210
Prior, John, Mr. Thirty Guineas to 306

R.

Raisins, their uſe in preſerving ſeeds 266
Reynolds, Sir Joſhua, opinion of, on harmony of colouring 283
Rhubarb, premium for cultivating 36
adjudged 213
letter on the cultivation of ibid.
why the Cultivators are not more numerous 216
the beſt, that which arrives at ſix or ſeven years growth 218
perſevering attention requiſite in the curer of 219
Hints on the culture of, from actual obſervation 220
proper time for ſowing 222
Nurſery bed, to be attended to ibid.
Rocks, premium for boring 89
Roots and Herbage, premiums for 32
Rot in Sheep, premium for cure of 48

S.

Salted Provisions, premium for preſerving 60

SANDERSON, John, certificate signed by 179
SCOTCH FIRS, advantage of planting 124, 126
superior value of to other trees ibid.
Profit from 127, 128
SEEDS, Paper on preſerving 265
SHADOW in painting, what 285
SHAW, William, certificate ſigned 230
Letter from 231
SHEEP, premium for protecting 50
SHELDRAKE, Timothy, Mr. Greater Silver Pallet to 279
SIEVERS, Mr. John, thanks to 339
SPURWAY, William, certificate ſigned by 196
SILK, premium offered for 81
Machine for carding, premium for ibid.
Worms, paper on the manner of rearing and treating 339
SILVER FIR. See Fir
SMOKE, deſtroying, premium for 55
condenſing, premium for 56
SNEYD, John, Eſq. premium to 117
Thanks to 265
SPIRIT-PROOF, premium for 60
STEAM, increaſing, premium for 61
SUGAR, premium for, ſeparating from treacle 53
See Raiſins
SURVEYS of Counties, premiums for 75

T.

TIMBER TREES, premiums for 19
Premiums for ſecuring 24

TIN, premium for refining 66
TINTS-DEMI, how produced by painters of the Venetian ſchool 287
TRANSIT INSTRUMENT, premium for 86
TURNEPS, premiums for 30
Letter on the comparative culture of 182
Remarks on the cultivation of 188

U.

VEGETABLE FOOD, premiums for 31
VEGETABLES, preſerving ſeeds of, premium for 52
VENETIAN SCHOOL, method of painting practiſed in 279
method of painting, baſis of the 292

W.

WASTE LAND, improvement of 232
expence of, 234, 236, 241, 244, 249, 251, 256
beſt mode of managing 238
WATCHES, improved detatched eſcapement for, deſcription of 306
WEBSTER, Joſeph, Twenty Guineas to 177
WHALES, taking, premiums for 86
WHEAT, premiums for culture of 27, 28
Premium for machine for dibbling 45
Letter and experiments on the cultivation of 156 to 162
Remarks on the different modes of culture of, 163

WHEAT, produce and expence attending a crop of 173
WHITE LEAD, premium for preparing 64
WHITE on Brown, extraordinary effect from 288
WICKS for Candles, premiums for 83
WIRE-WORM, premium for deſtroying 47

Y.

YEAST, premium for 59

DIRECTIONS TO THE BOOKBINDER.

Place Plate I of Mr. Jee's Mangle, to face page 303.
Plate II of ditto, to face page 305.
Mr. John Prior's Eſcapement, to face page 307.
Capt. Bolton's Machine for drawing Bolts in and out of Ships, to face page 319.